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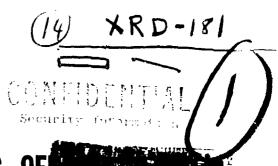
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SHIP PREPARATION 7995 and TARGET INSPECTION

FINAL REPORT
TESTS ABLE AND BAKER

CONFIDENTIAL
Security Information

By Authority of Joint (houseling) (5 april to 15 April 29)

By Authority of Joint (houseling) (5 april 29)

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DIRECTOR OF SHIP MATERIAL
JOINT TASK FORCE ONE
OPERATION CROSSROADS



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Section I - INTRODUCTION.

- The nurnose of this photographic record is to present wisually the damage to electronic equipment from each test and to illustrate conditions described and analyzed in the report.
- E. Photographs of selected electronic equipment installations aboard the target vessels were taken before Test ABLE, but only these which best illustrate comparisons of ore and nost test conditions of units were chosen for this record. Post test photographs were taken only where damage was incurred. Where there was renetition, representative photographs were chosen to show typical damage. Additional photographs are included in the supporting files.
- 3. All pictures are mounted with short dimension across the page to allow maximum enlargement. Bottom of picture is either at bottom of page or along right margin.
- 4. Approximate ranges and bearings from the explosion are indicated for each ship $_{N}$

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ATOMIC ENLERGY ACT 1948



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TEST ABLE

U.S.S. ARKANSAS (BB33)

Range: 600 yards

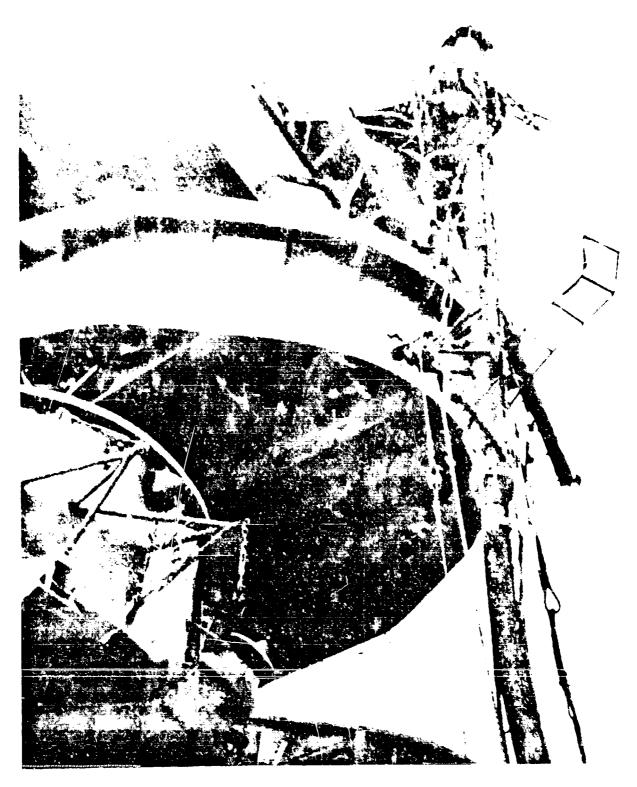
Bearing: 050°

Very heavy damage was sustained by this ship because of its proximity to the explosion center. Photographs illustrate the general shambles in which the topside of the ship was found.

Broken radar masts, damaged antennas and exposed equipment give a good indication of the effect of the explosion at this distance.

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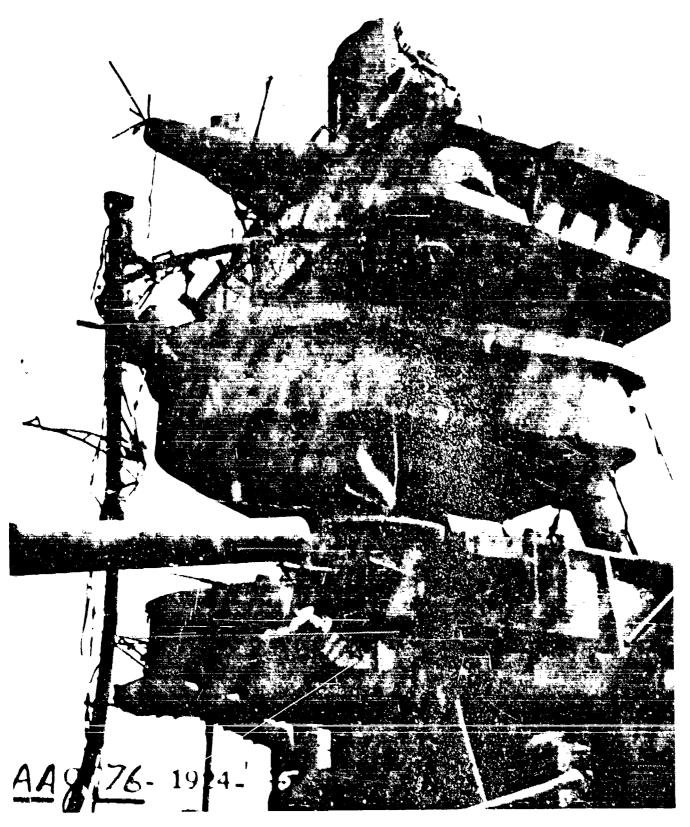
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POST ABLE - MAINWAST AND SUPERSTRUCTURE. General view of damage. Note broken insulators (arrows).

U.S.S. ARKANSAS (BE 33)

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POST ABLE - MAIN MAST AND SUPERSTRUCTURE. View of general overall damage to antennas and other equipment.



POST ABLE - FORWARD SUI ERSTRUCTURE AND FOREMAST. View of coneral damage caused by test.

TECHET

U.S.S. AREANSAS (BF 33)

Page 7 of D74 pages 4500



POST ABLE - TOP OF MAINMAST. The SC antenna was demolished when the mainmast folded, allowing the antenna to strike the deck.

U.S.S. ARKANSAS (PB 33)
Page 8 of 274 pages. 4569

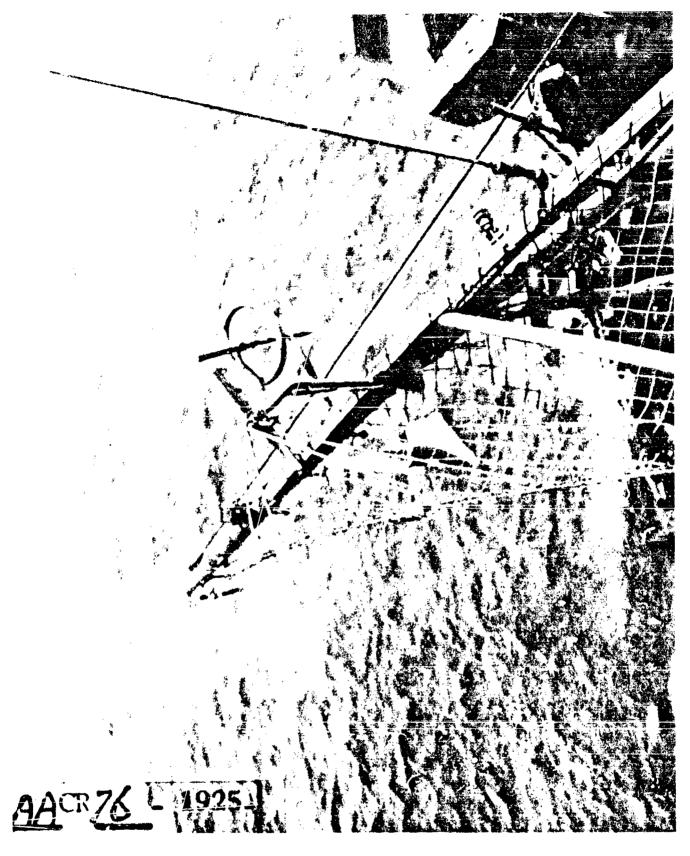


POST ABLE - TOP OF MAINMAST. The top of mainmast hit the deck and smashed the SG radar antenna.

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U.S.S. ARKANSAS (BB 33)

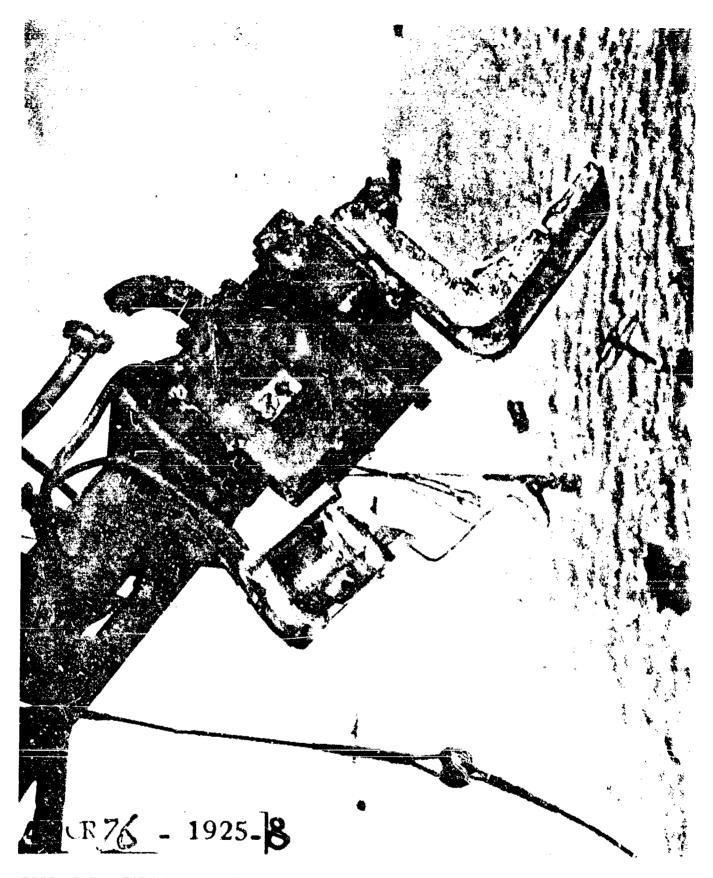
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POST ABLE - ANTENNAS ON STARBOARD YARDARM. The TBS antenna was severly damaged. The BK antenna tilted slightly forward but was otherwise undamaged.

U.S.S. ARKANSAS (BB 33)

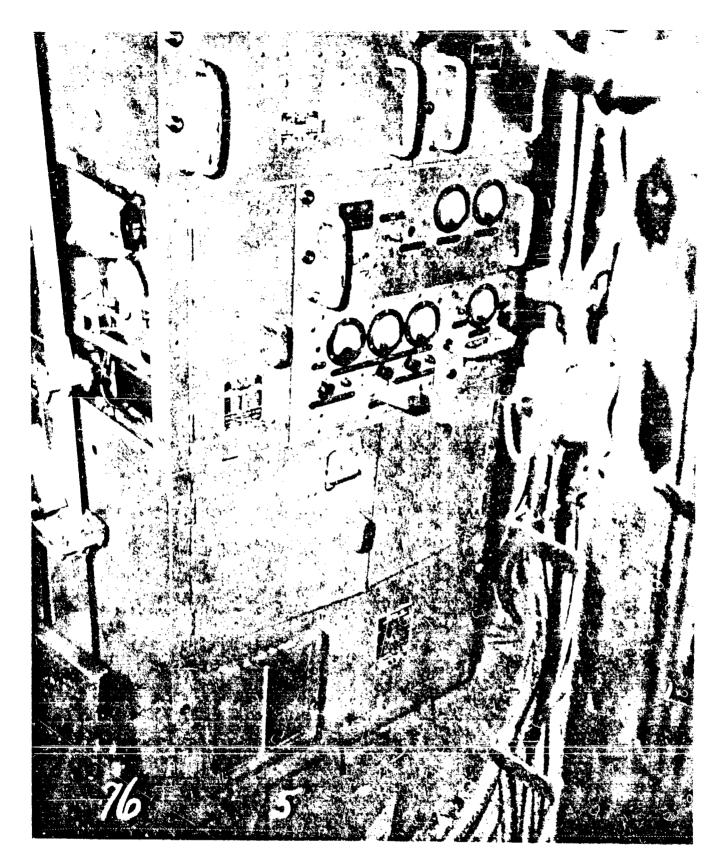
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POST ABLE - FORWARD SG ANTENNA. This is one of the few SG antennas which did not survive the direct blast on test. One side of the reflector and the gooseneck nozzle were broken and missing. The waveguide at the entrance to the antenna was also broken.

U.S.S. ARKANSAS (BB 33)

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POST ABLE - FORWARD SG TRANSMITTER. The damage to this unit was greater than that apparent here. The bulkhead tilted the transmitter forward and the frame was so distorted that the transmitter doors would not close and drawer type units would not slide. Cables running up the side of the unit were torn and several were open. The wave guide was distorted causing crystal protector, (a) to jam. SECRET

U.S.S. ARKANSAS (BB 33)

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POST ABLE - VP-2 REMOTE PPI. The main physical damage suffered was caused by the heavy plate (shown in foreground) which fell and hit the unit.

U.S.S. ARKANSAS (BB 33)

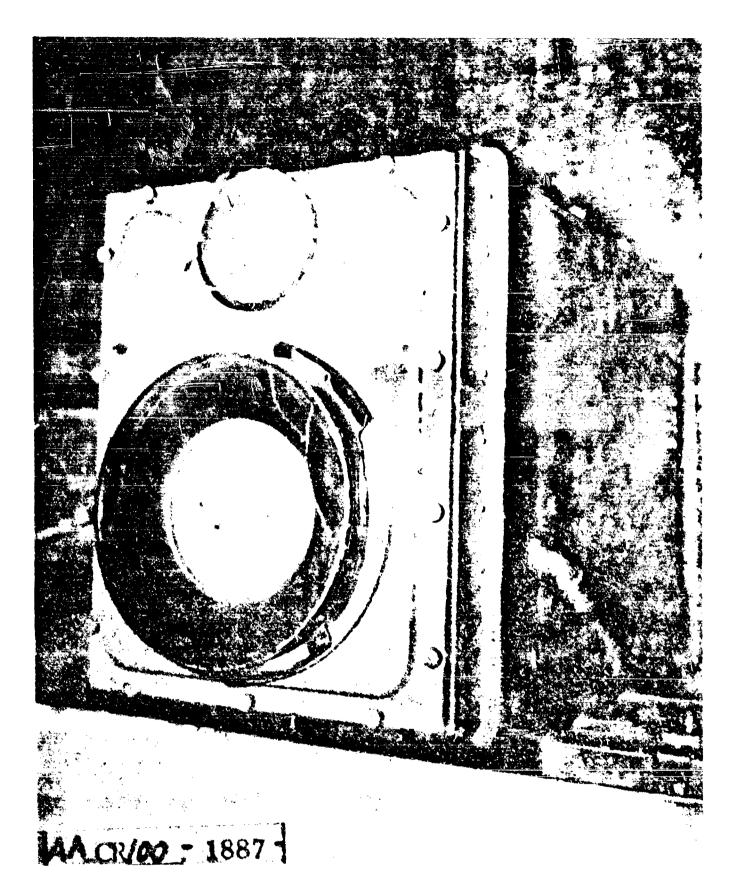
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POST ABLE _ VD_2 REMOTE PPI. This was one of the few equipments which were exposed to severe blast and radiation in Test Able and were returned to NRL for analysis.

U.S.S. ARKANSAS (BB 33)

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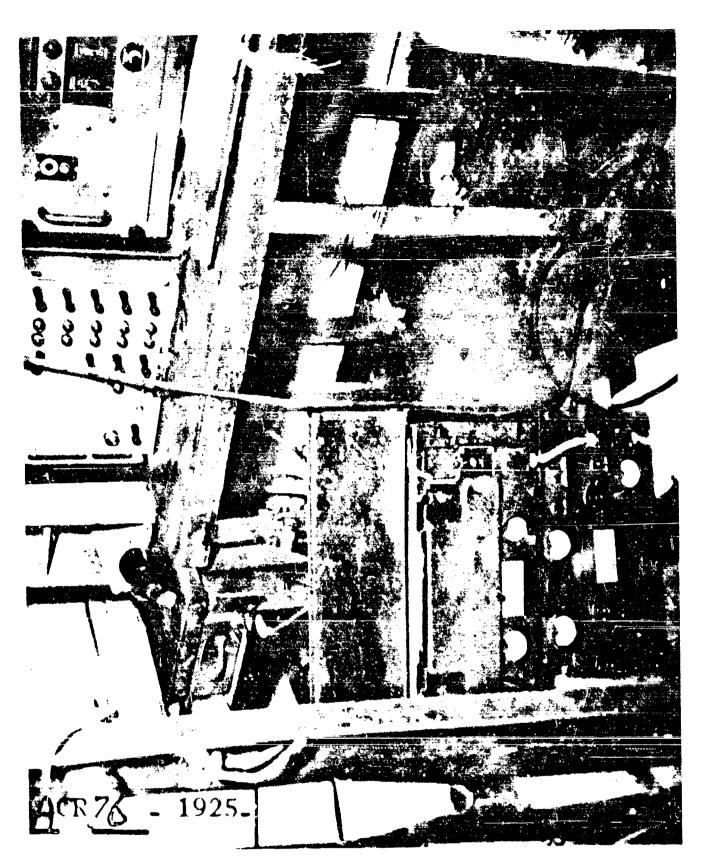


POST ABLE - VD-2 PPI REPEATER. The plastic cover over the PPI tube was broken. This had no effect on the operation of the equipment as the tube itself was not broken.

SECRET

U.S.S. ARKANSAS (BB 33)

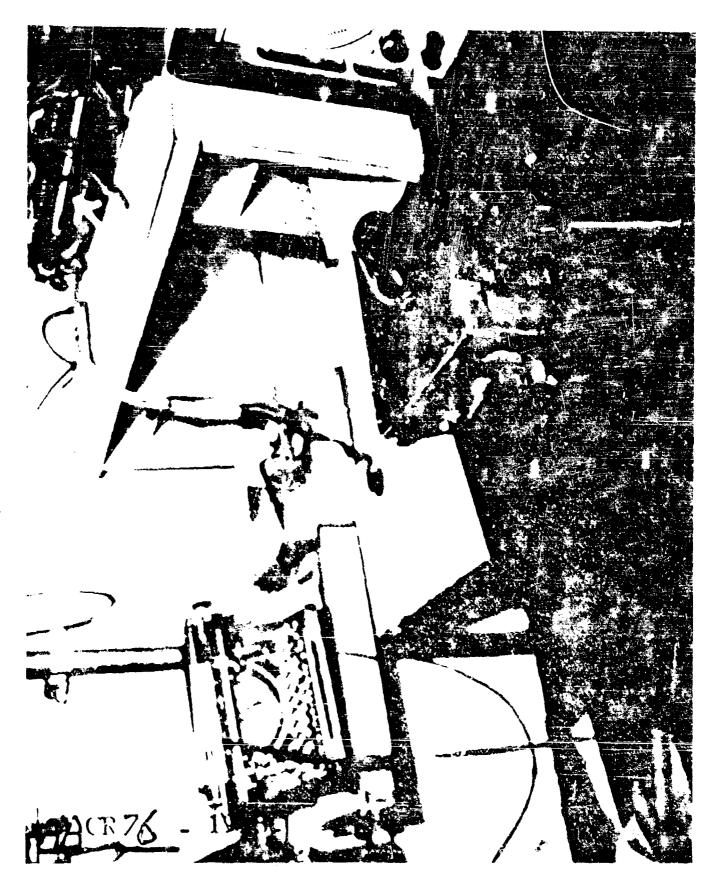
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POST ABLE - TBS RECEIVER-TRANSMITTER. This unit sheared its mounting bolts and was hurled to the deck. The two sections became slightly separated. Besides the broken meter in the front panel there was considerable serious internal damage.

U.S.S. ARKANSAS (BB 33)

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POST ABLE - TBS. Arrow shows the main terminal board of the TBS equipment. This remained on the shelf as the TBS was ripped away and hurled to the deck.

U.S.S. ARKANSAS (BF 33)

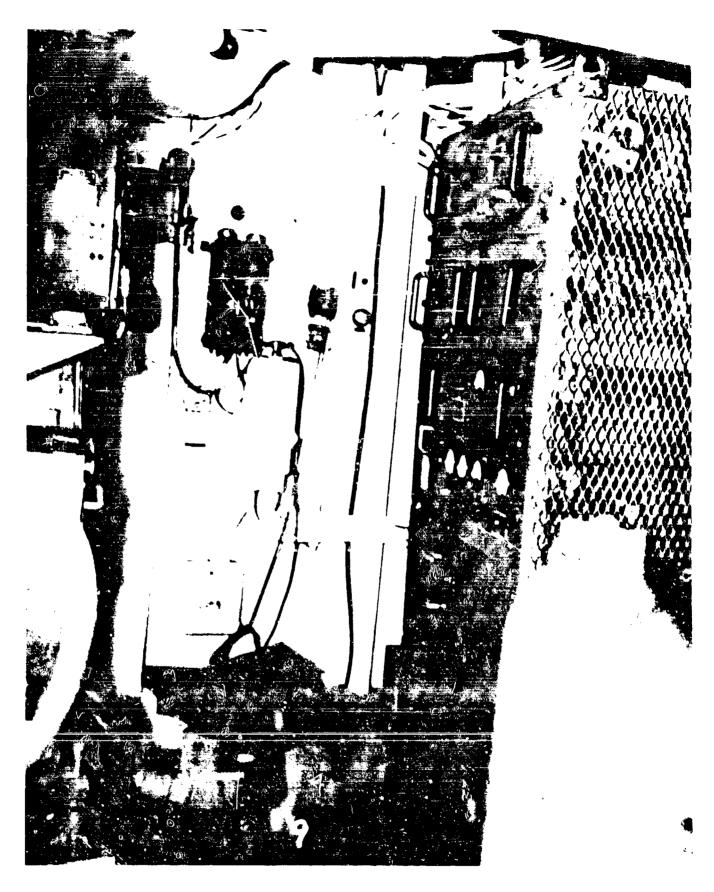
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<u>POST ARLE - TBS</u>. View showing bottom of the TBS and broken wires which were from the terminal board.

U.S.S. ARKANSAS (BB 33)

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POST ABLE - AFTER RADAR TRANSMITTER ROOM. In spite of having been severely shaken up, all individual units here were functionally operable. However all antennas for these equipments were swept away with the mainmast.

U.S.S. ARKANSAS (BB 33)

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TEST ABLE

U.S.S. NEW YORK (BB-34)

Range: 1700 yards

Bearing: 1100

The REW YORK suffered very light damage.

These pictures of the Mark 3 Med. 2 antenna show the most serious case of damage on board this ship. Other damage was of minor importance...

SECRET

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PRE ABLE - ME 3 RALAR ARTENNA. Antenna on main battery director aft.

SECKET

U.3.3. 977 YURA (BB-64)

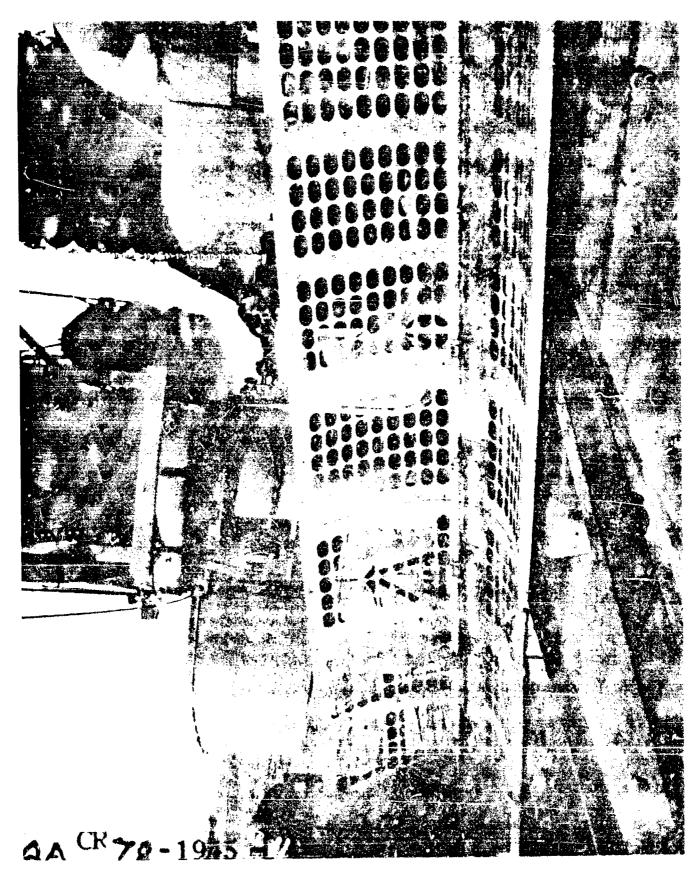
rage 21 of 274 pages



POST ABLE - AR RADAR AUTENNA. Supporting framework failed completely as bleat blew antenna from mount.

W.S.J. IN YOR (B'∈34)

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POST ABLE - MK 3 RADAR ANTENNA. Close up of antenna after it was blown off an fell two decks. The main decaye was caused by the fall, the mounting being the only part that failed. If mounting had not failed antenna probably would have been blown apart.

U.S.S. NEW YORK (BB-34)

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TEST ABLE

U.S.S. NEVADA (BB-36)

Ranges 600 yards

Bearing: 1050

The NEVADA suffered heavy damage to electronic equipment in Test ABLE because of its proximity to the explosion.

The most serious damage was to antennas and to equipment adjacent to outside bulkheads in the superstructure.

An example of damage to equipment in the superstructure is shown in the picture of the RCM room. This is the most severe case of such damage found on this ship.

SECRNT

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TEST ABLE

U.S.S. NEVADA (BB-36)

Range: 600 yards

Bearing: 1050

The NEVADA suffered heavy damage to electronic equipment in Test ABLE because of its proximity to the explosion.

The most serious damage was to antennas and to equipment adjacent to outside bulkheads in the superstructure.

An example of damage to equipment in the superstructure is shown in the picture of the RCM room. This is the most severe case of such damage found on this ship.

SECRNT

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PRE ABLE. General view showing antenna array.

SECKET

U.S.S. NEVADA (BB-36)

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POST ABLE. General view. Note destruction of all antennas.

U.S.S. NEVADA (BB-36)

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POST ABLE - TOP OF MAINMAST. Blown forward breaking reflector off of SG antenna. Mast was later cut down to remove hazard

U.S.S. NEVADA (BB 36)

Page 27 of 274 pages

4569

"是是这个人的,我们就是一个



POST ABLE - YCRWARD SG ANTENNA. Fell to deck and shattered when top of foremast was blown off.

SECKET

U.S.S. NEVADA (BB 36)

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POST ABLE - ROM ROOM. Bulkneads caved in on both sides of room. Equipment was thrown from cases or ripped from mountings and thrown to deck. In no case did sheckmounts separate at rubber, though bolts sheared and pulled through light metal of equipment covers or supporting brackets.

U.S.S. NEVALA (BB 36)

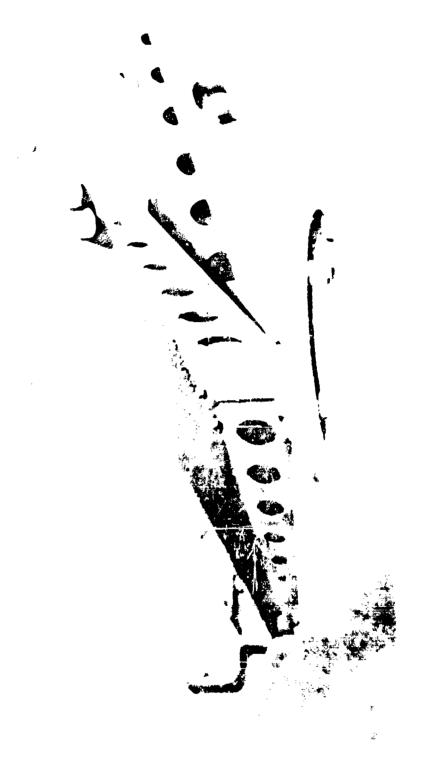
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POST ABLE - RCM ROOM. Bulkheads caved in both fore and aft throwing all equipments from cases and shearing bolts.

U.S.S. NEVADA (BB 36)

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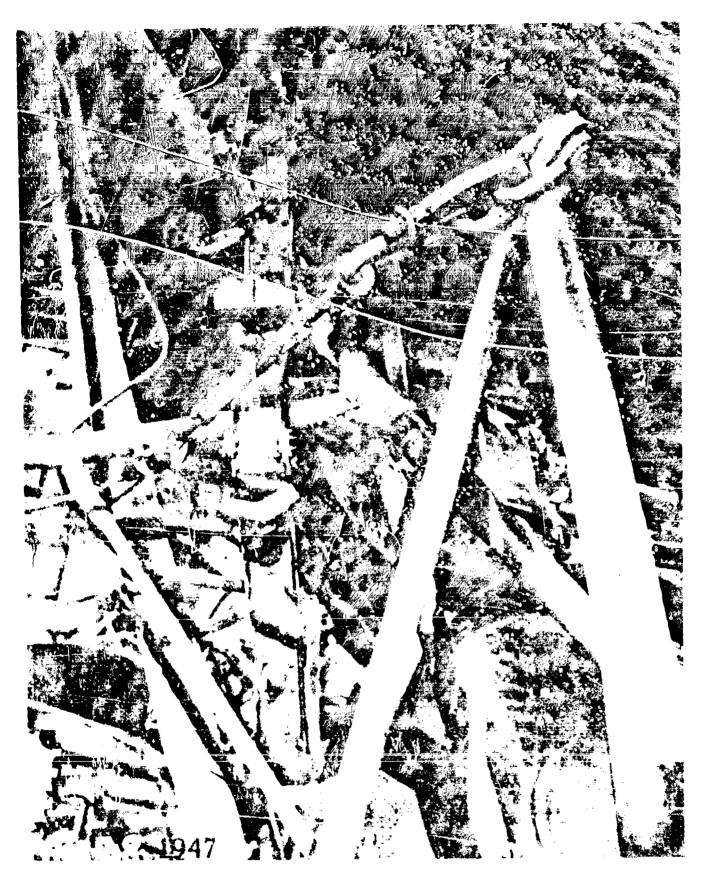
A ATR 14-1947

POST ABLE - MK 3 MOD 2 ANTENNA MOUNT AFT. Antenna was blown completely off.

SEURET

U.S.S. NEVADA (BB 36)

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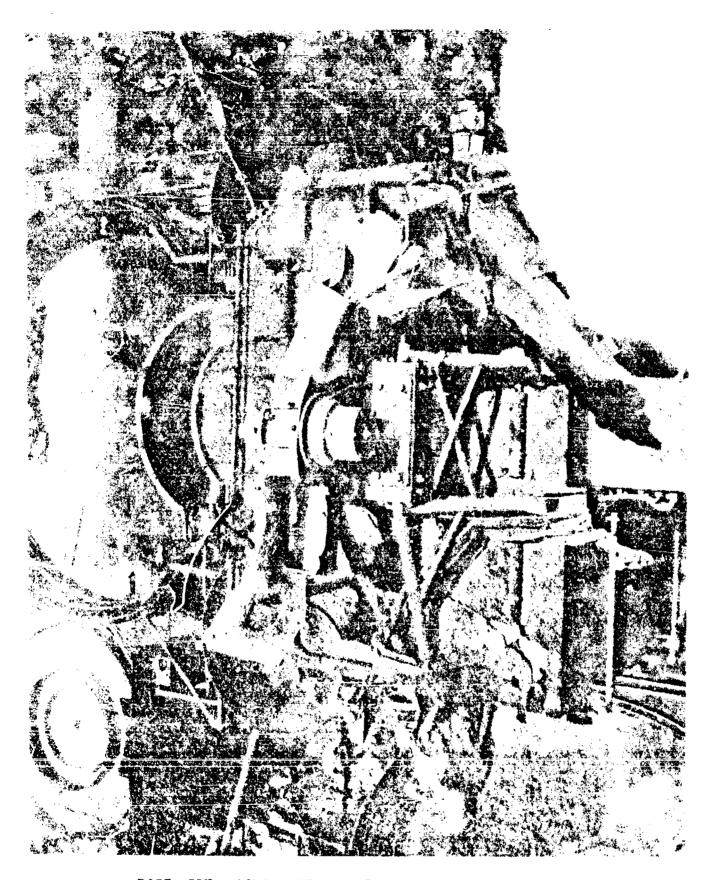
- Mr. 3 ANTENNA MOUNT AFT. Part of Mk 3 antenna (A) which was blown off of mount.

Sach.I

U.S.S. NEVALA (FE 36)
Page 32 of 274 pages 4569



POST ABLE - MK 3 MOD 2 INDICATOR. Knocked out of its case and found in this position.



POST ABLE - MK 12 AND 22 AFT. Remains of Mk 12 antenna mount.

U.S.S. NEVADA (BB 36)

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POST ABLE - MK 12 AND 22 AFT. Lobe switching assembly (A) with antenna coax and Mk 12 gear box assembly (B) lying in turrent below sky 2 director. The Mk 12 antenna is lying below director.

SEGRET

U.S.S. NEVADA (BB 36)

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115+9

TEST ABLE

U.S.S. PENNSYLVANIA (BB_38)

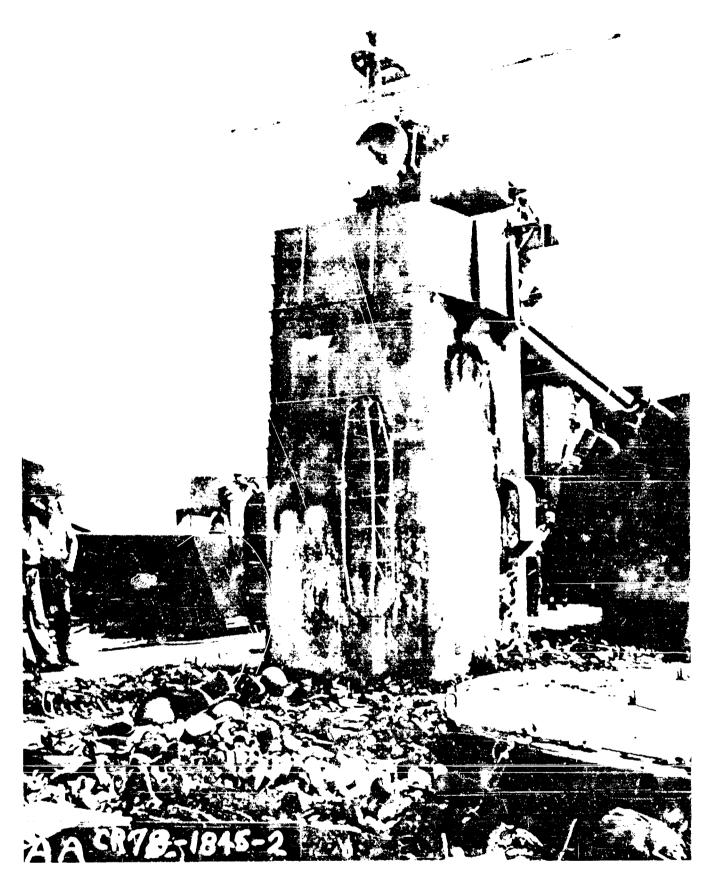
Range: 1700 yards

Bearing: 1500

The damage aboard the PENNSYLVANIA was light. Fire from Army Quartermaster equipment exposed outside a radar compartment caused nearly all damage.

SECRET

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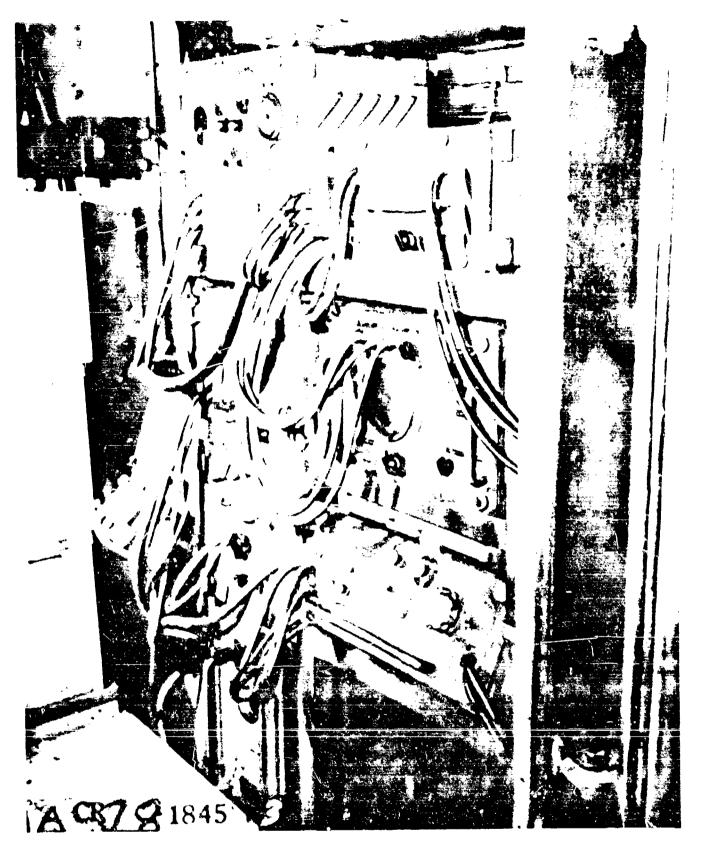


POST ABLE _ DECKHOUSE CONTAINING MK 29 FIRE CONTROL RADAR. Radiation from blast set Army equipment on deck after and burned outside of deckhouse. Heat caused damage to cables, melted tar out of transformers and smoked up equipment inside deckhouse. One meter was damaged. Equipment would probably have operated if cables had not failed.

SECRET

U.S.S. PENNSYLVANIA (BB 38)

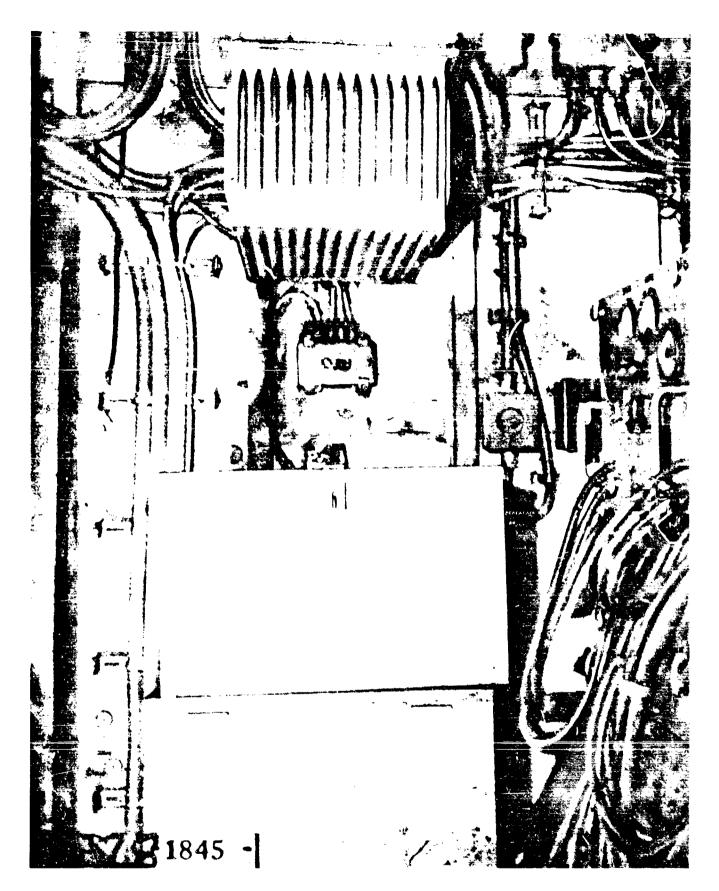
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POST ABLE _ MK 29 MOD 2 RADAR MAIN FRAME IN PORT RADAR TOWER. The fire outside the compartment caused some damage. Cabling which was secured to the bulkhead was damaged to such an extent that shorts and grounds occurred. The meters in the power control unit were damaged. The plastic cover over the A - scope changed color from green to clear around the edges. (See arrow).

U.S.S. PENNSYLVANIA (BB 38)

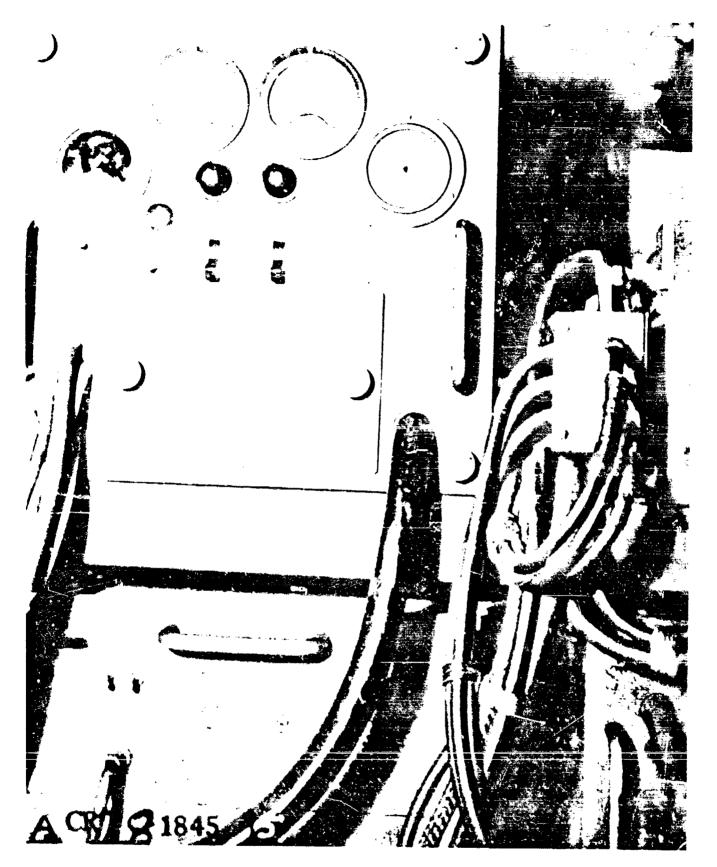
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POST ABLE - MK 29 MOD 2 RADAR. Transmitter-Receiver and mainframe were damaged by smoke and fire. Cables have been damaged by heat which melted the insulating material allowing it to squeeze out through the external shield.

U.S.S. PENNSYLVANIA (BB 38)

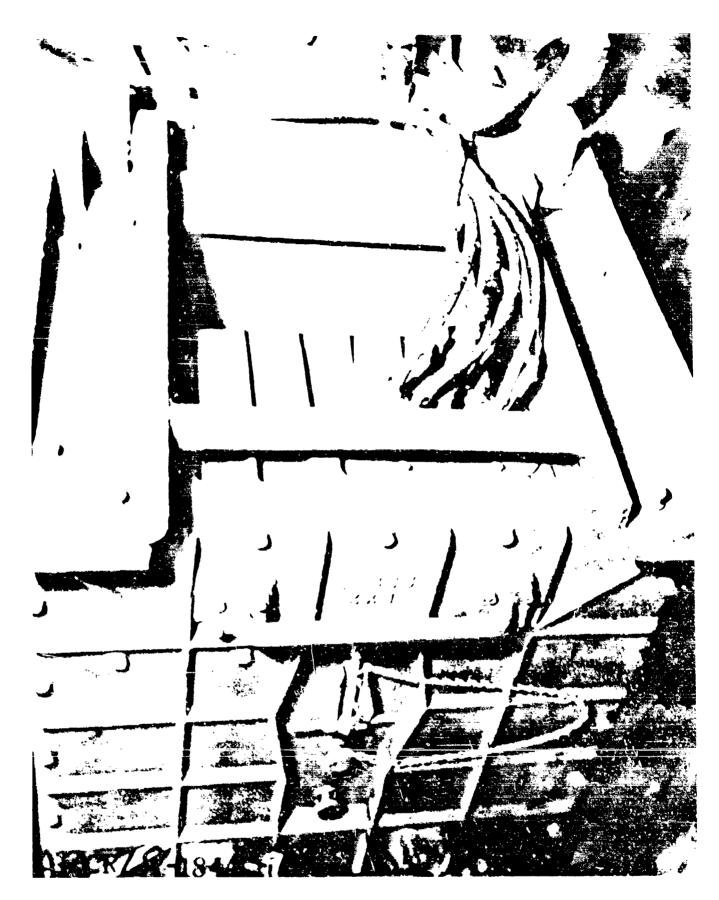
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POST ABLE _ MK 29 RADAR POWER CONTROL UNIT. Shows the damage done to the meters by the intense heat. Meter needles were against stop pin at zero end of scale, indicating that movements had been damaged. Plastic around zero set screw in center of meter on right was badly burned.

U.S.S. PENNSYLVANIA (5B 38)

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POST ABLE _ MK 28 RADAR TRANSMITTER. Transmitter forward on the side showing scorching of cables by blast radiation.

U.S.S. PENTISYLVANIA (FB 38)

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TEST ABLE

U.S.S. PENSACOLA (CA_24)

Range: 900 yards

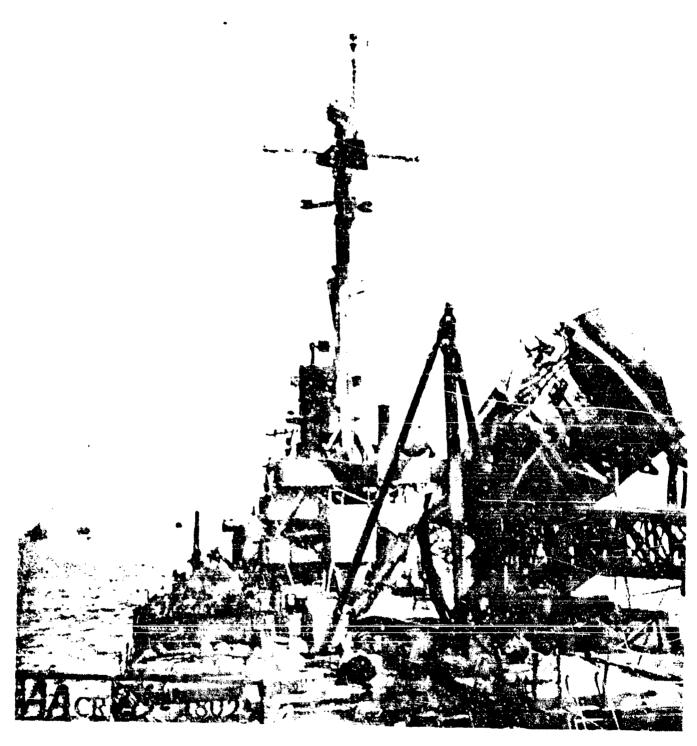
Bearing: 080°

The PENSACOLA received very heavy damage from test ABLE and many good photographs of equipment damage are included.

The pictures of antenna destruction help to stress the seriousness of damage to topside components and units.

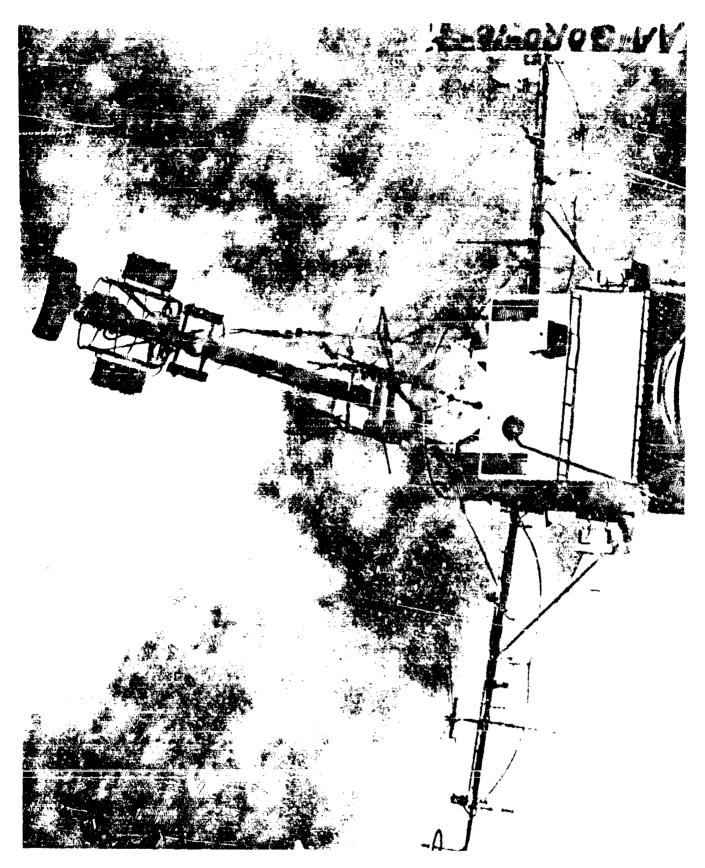
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POST ABLE _ GENERAL VIEW LOCKING AFT.

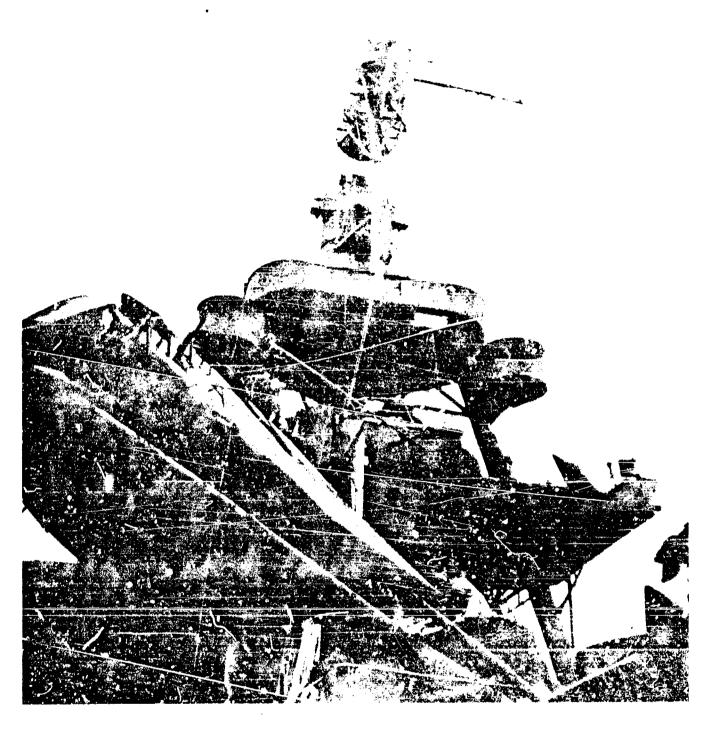
U.S.S. PENSACOLA (CA 24)
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<u>POST ABLE - ANTENNAS ON FORMAST</u>. The Nancy and SG equipments were operative after wiring was repaired. Due to the bend in the mast the equipment was useless operationally.

U.S.S. PENSACOLA (CA 24)

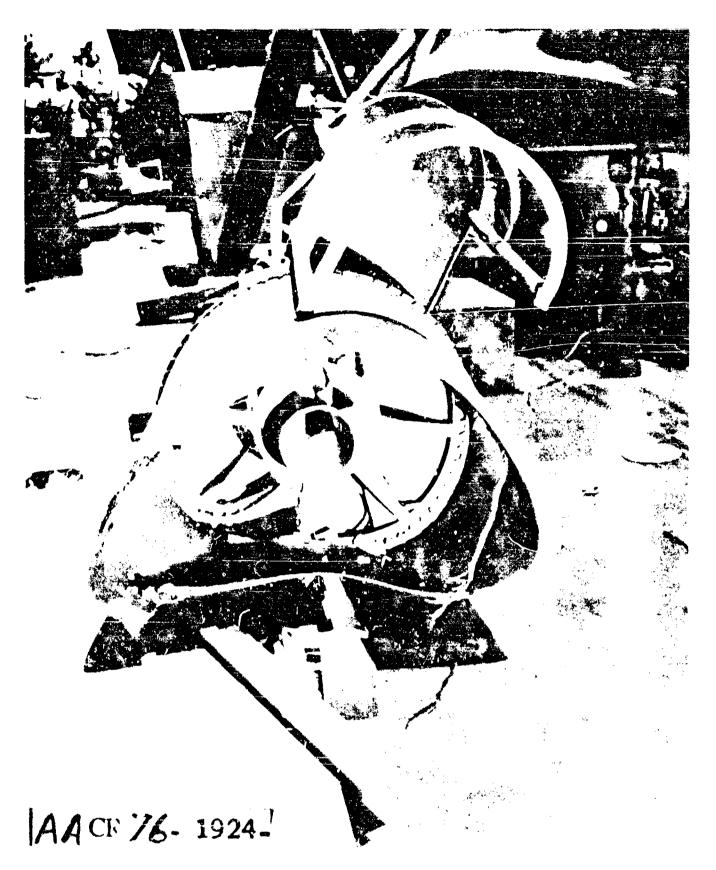
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POST ABLE _ FOREMAST SUPERSTRUCTURE. General view showing damage to for set and superstructure.

U.S.S. PENSACOLA (CA 24)

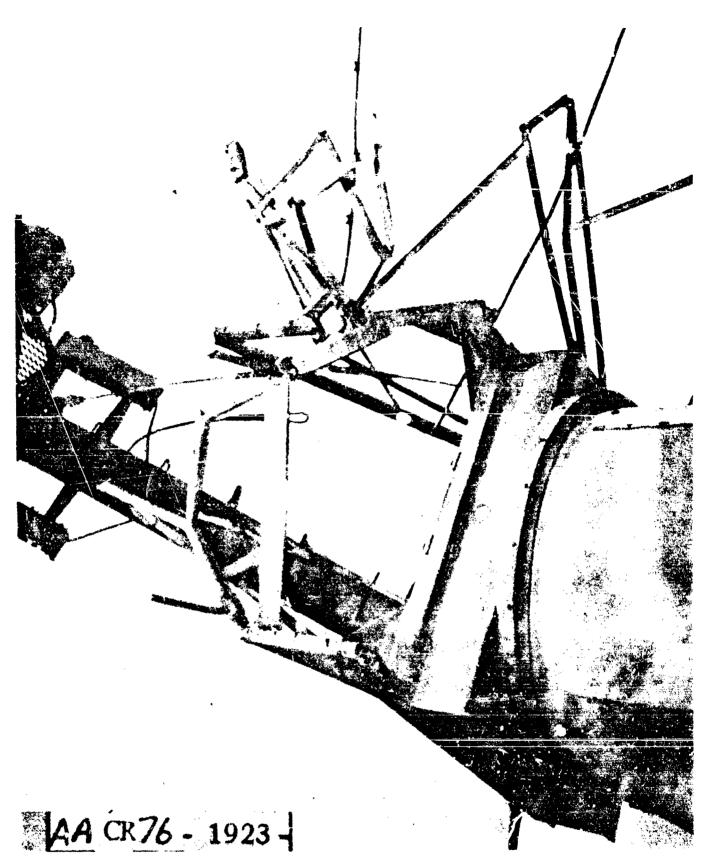
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<u>POST ABLE - TDY ANTERNA</u>. Loss of supporting mast allowed antenna to fall to deck, completely disabling it.

U.S.S. PENSACCLA (CA 24)

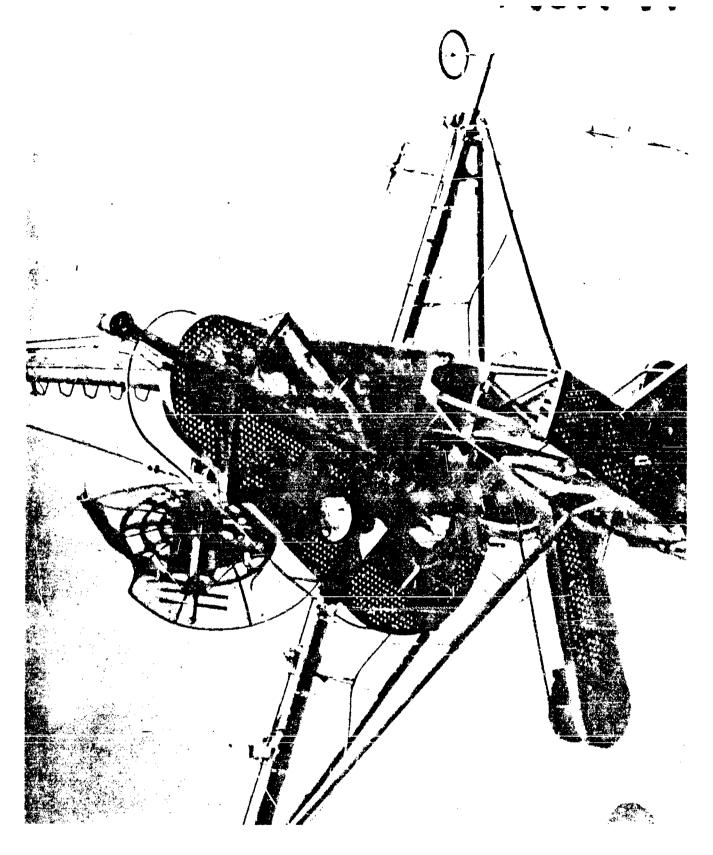
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POST ABLE _ SK PEDESTAL. Fragments of antenna remaining.

U.S.S. PENSACOLA (CA 24)

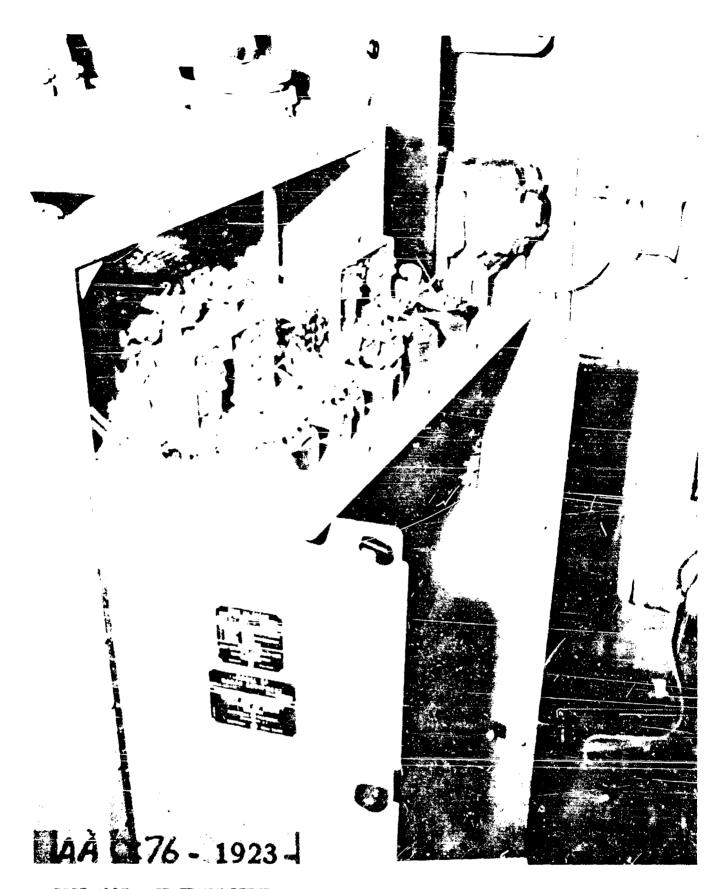
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<u>POST APLE - SP ANTENNA</u>. Echoes were received in spite of damaged condition. Beam pattern was affected, and complete rotation was impossible due to damaged drive assembly in pedestal.

U.S.S. PENSACOLA (CA 24)

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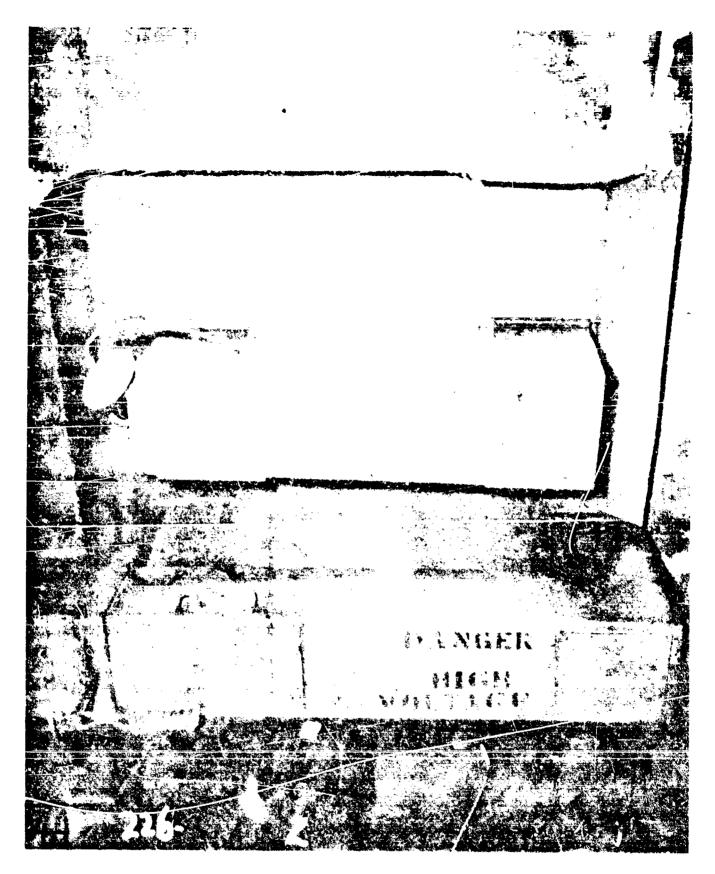
POST ABLE - SP TRANSMITTER. Knocked forward 4" when the bulkhead behind it was dished in by the blast. After realigning waveguide, (see arrow) operation was normal.

U.S.S. PENSACOLA (CA 24)

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POST ABLE - INSULATORS AND ANTENNAS. Communication antennas were damaged in this manner in a number of cases. Both small entering insulators cracked from strain. Antenna wire was also parted.



POST ABLE - ANTENNA TRUNKS. The strain on the lead in has broken the wire as well as the bowl of the entering insulator outside of Radio I.

U.B.S. PENDACOLA (CA 24)

Fage 51 of 274 nages

4.51



PCST ARIE - THIP ARTERIA. (See arrow). The large vertical types of white ontennas in general did not stend the force of the blast well as the smaller more flexible types.

TEMOLE

U.S.S. PINSACCIA (CA 24)

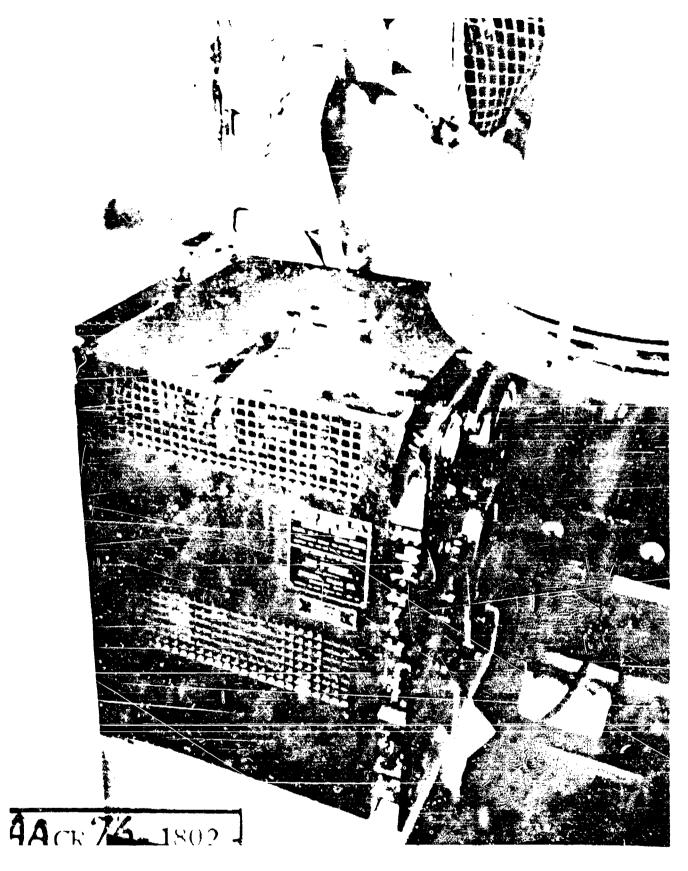
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POST ABLE _ RADIO III. Bulkhead which gave way and bulged caused considerable damage to bulkhead mounted units.

U.S.S. PENSACOLA (CA 24)

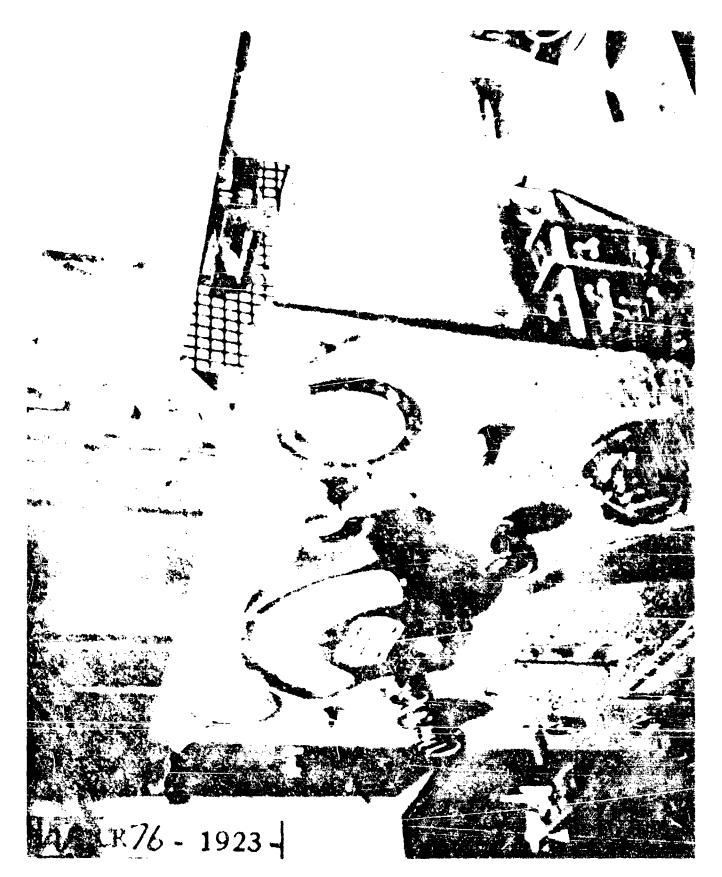
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POST ABLE _ LR1 FREQUENCY METER _ RADIO I. This unit was damaged by an unknown flying object and shock which caused the chassis to be sprung forward out of its case. In general the securing of banels in this manner is not adequate, since the penels were lo sened in a number of instances.

U.S.S. PENSACOIA (CA 24)

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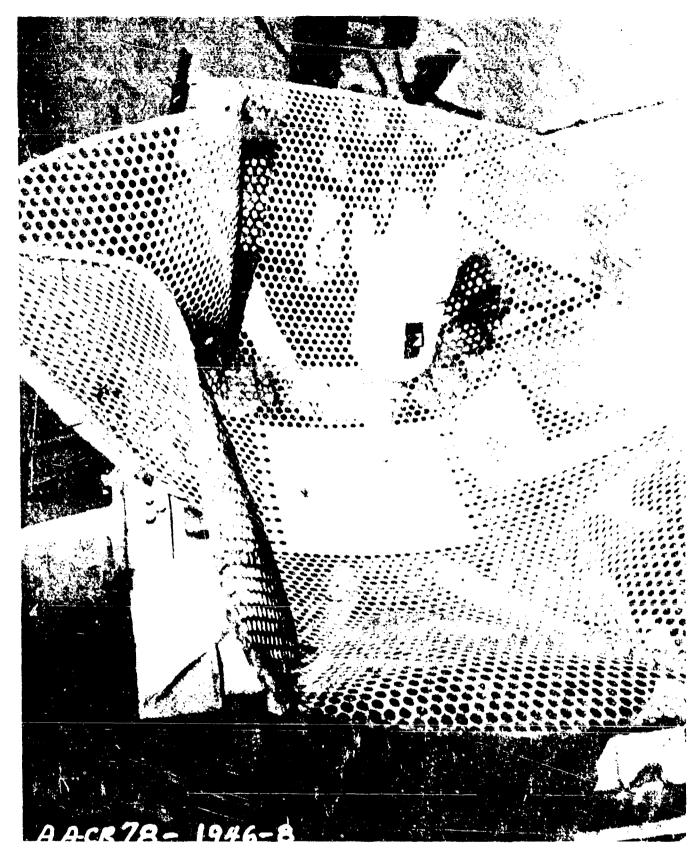
FOST ABLE _ IR | FREQUENCY METER _ RADIO I. Tube was broken and case was warped.

U.S.F. PENSACCIA (CA 24)

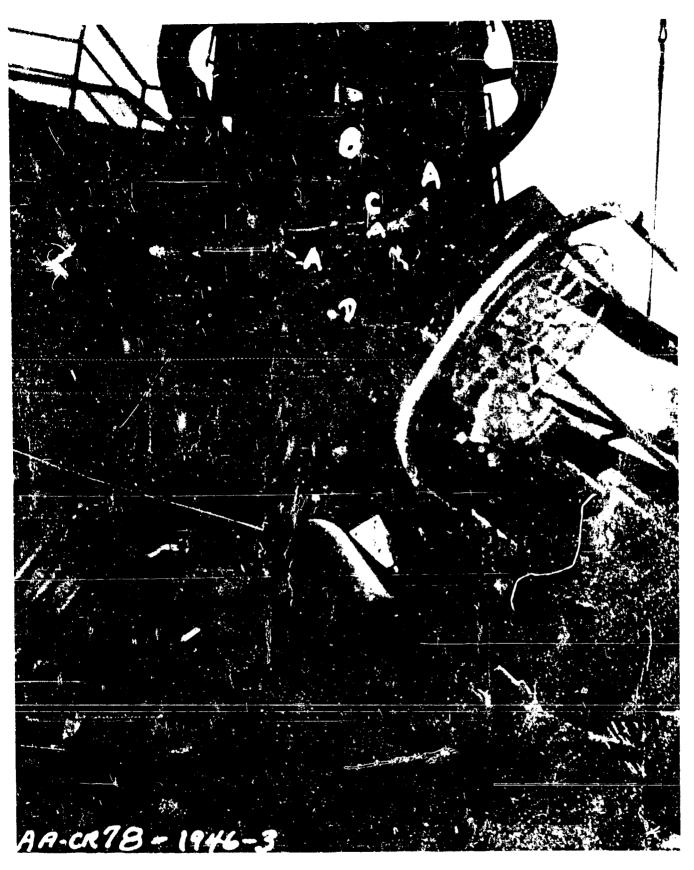
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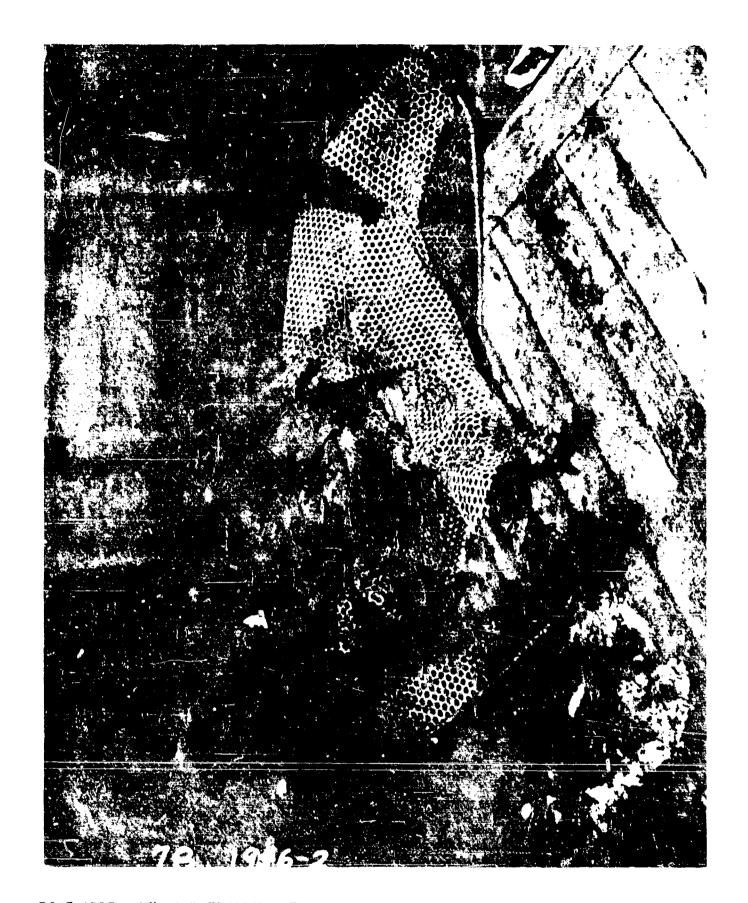
POST ABLE - LOPAN. Aircraft type mounting racks are uncuttable for this type equipment. Practically the only dimage suffered to loran equipment was the result of equipment being thrown to the deck.



POST ABLE _ MK 28 ANTENNA. Main battery forward. Parabola and one or two supports would have to be replaced.



POST ABLE - MK 28 MOD 2 RAPAR. Starboard 40 MM quad run mount. Remains of parabola support, "A" and parabola "C" are shown. Dipole assembly, "B" is bent about 45 degrees from normal and cover blown off. The coaxial line connecting transmitter to antenna was broken at "D".



POST ABLE _ MK 28 REFLECTOR. Remains of reflector from Mk 28 antenna.

SACRET

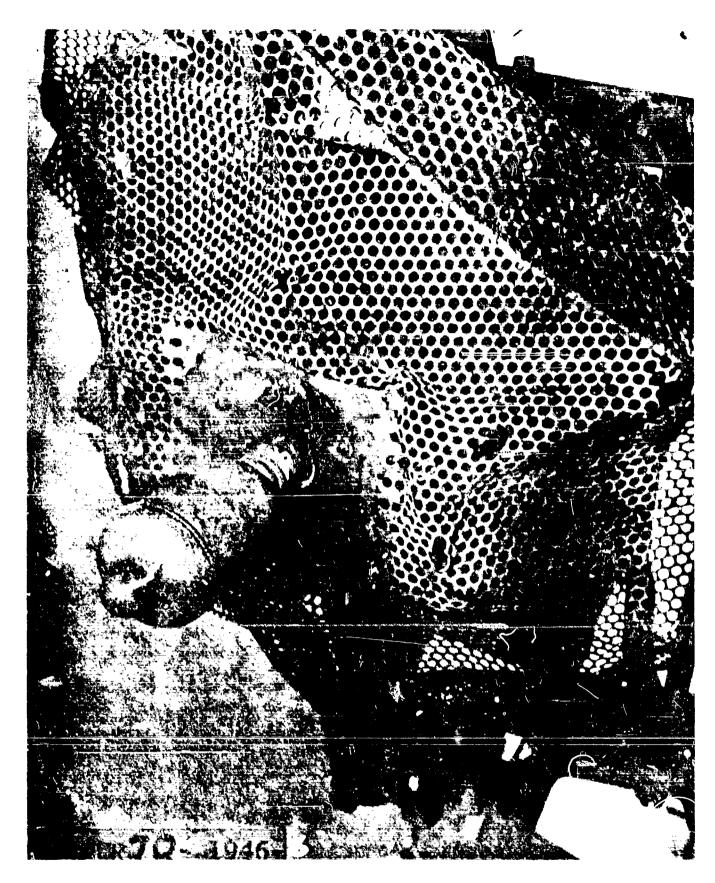
U.S.S. PENSACOLA (CA 24)

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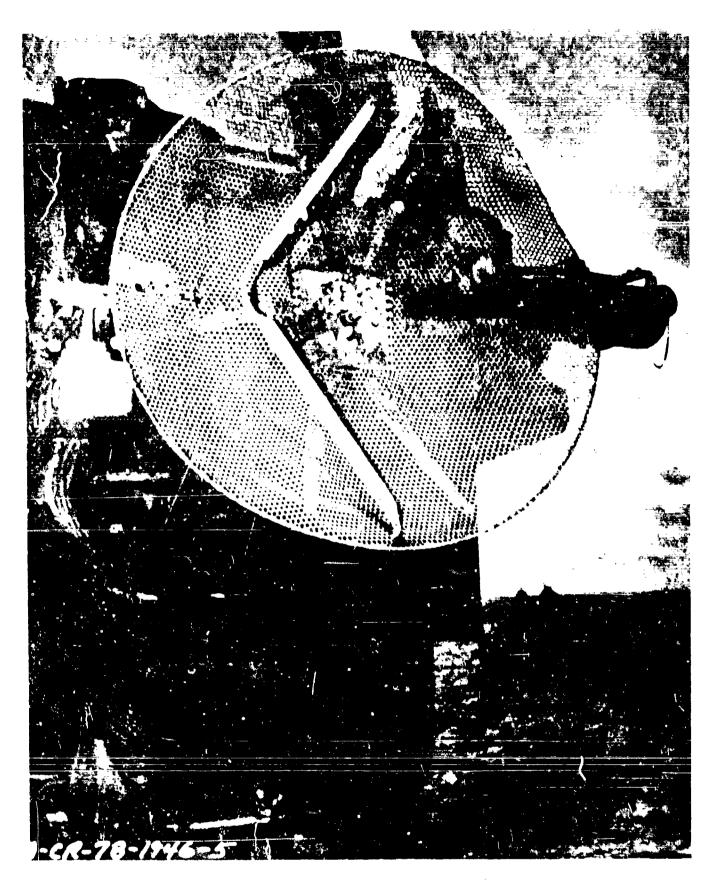


POST ABLE _ MK 28 MOD 2 RADAR. Fire control for 40 MM quad port side. Antenna narabela has been badly bent and torn by the blast. The dipole assembly has been blown off.

U.S.S. PENSACOLA (CA 24)



POST ABLE _ MK 28 ANTENNA. Main battery director aft. Parabola and supports were badly damaged. Polyethylene dipole cover was burned by heat from radiation. Cables to transmitter were also charred slightly.



POST ABLE _ MK 28 MOD 3 RADAR. As director aft. Radar was operating into dummy load during test. Dummy load was blown off at "C" and was found lying on deck. Support "A" was used to help hold the dummy load. Parabola was slightly bent and would have to be replaced.

U.S.S. PENSACOLA (CA 24)

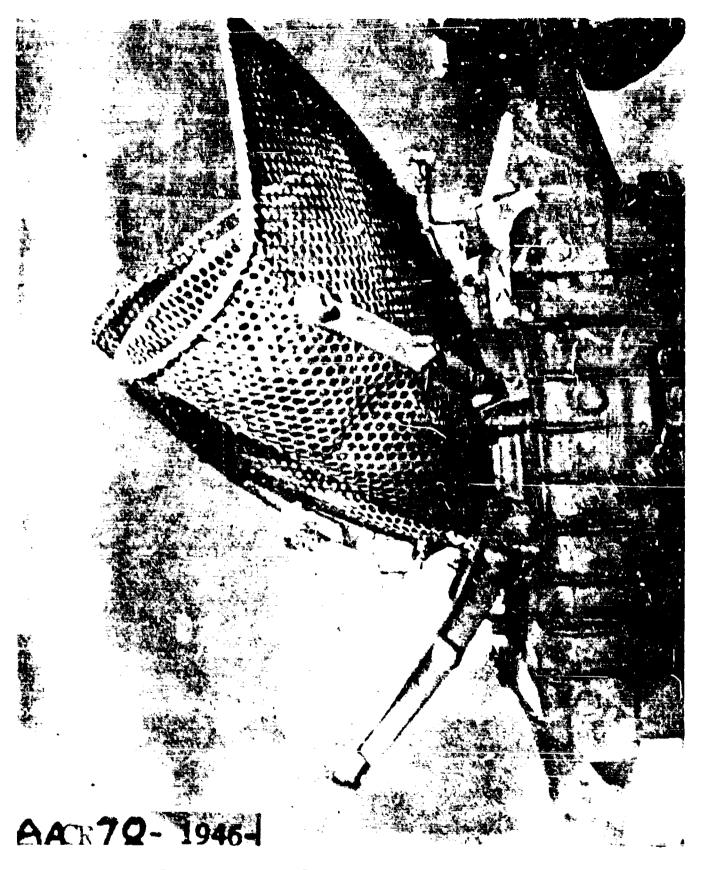
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POST ABLE - MK 28 RADAR LOAD RESISTOR. Mk 28 Mod 3 AA director was operating into dummy load "B" during test. Dum y locd was blown off by blast.

U.R. PENSACOLA (CA 24)

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POST ABLE _ MK 28 ANTRICA. Forward AA fire control antenna. Broken parabola support "A" is shown. Parabola, varabola support, and dipole assembly would all have to be replaced to restore operation.

TEST ABLE

U.S.S. SALT LAKE CITY (CA_25)

Range: 1000 yards

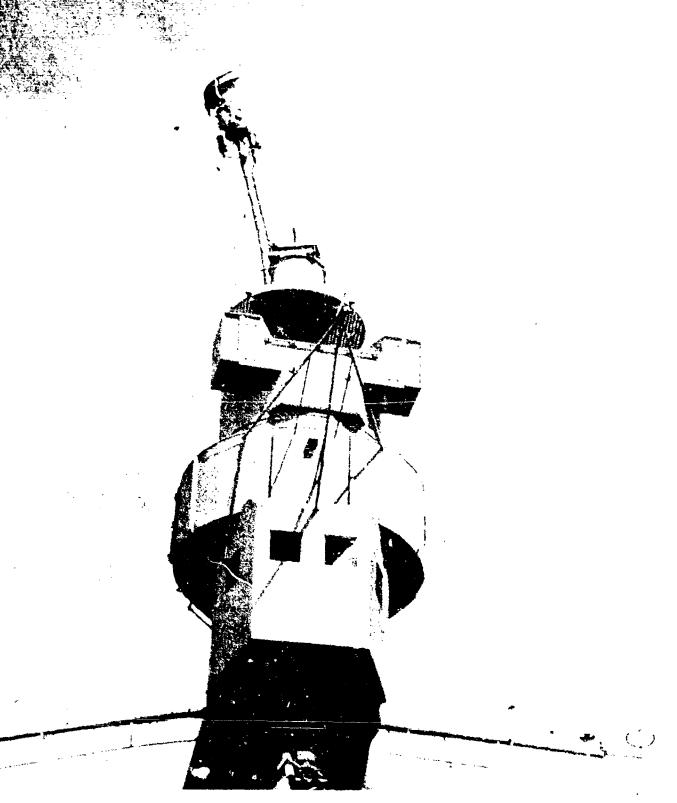
Bearing: 135°

Heavy damage was sustained by this ship in test ABLE. Damage to BuShips and BuOrd equipment is well covered by these photographs.

Notice that the major part of the damage is to units above deck and directly exposed to the blast.

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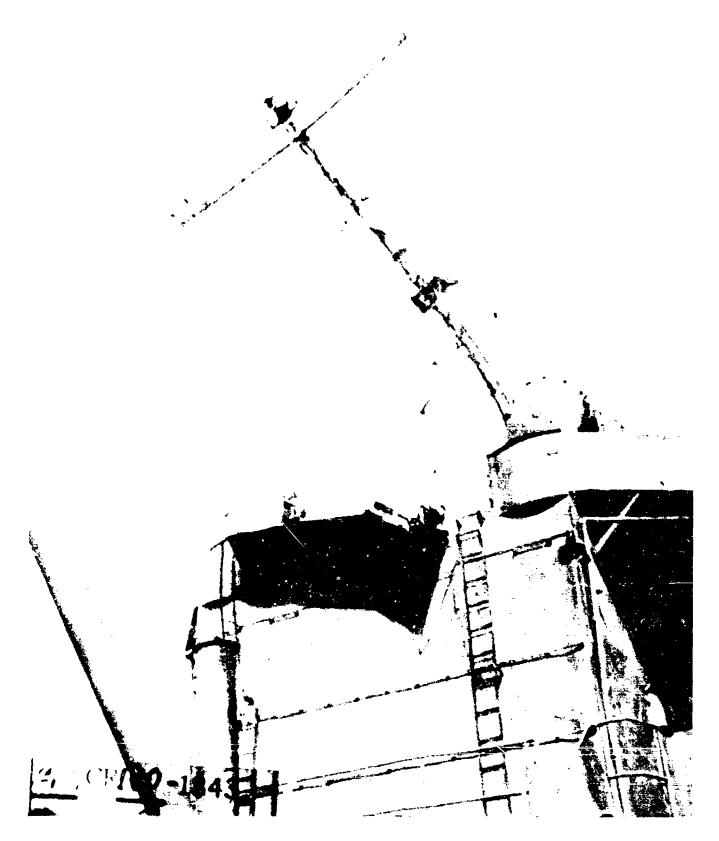
SECRET



POST ABLE - BENT MAST. The radar at ton was still operative, but the bearing and coverage were unsatisfactory.

U.S.S. SALT LAKE CITY (CA-25) f274 pages #569

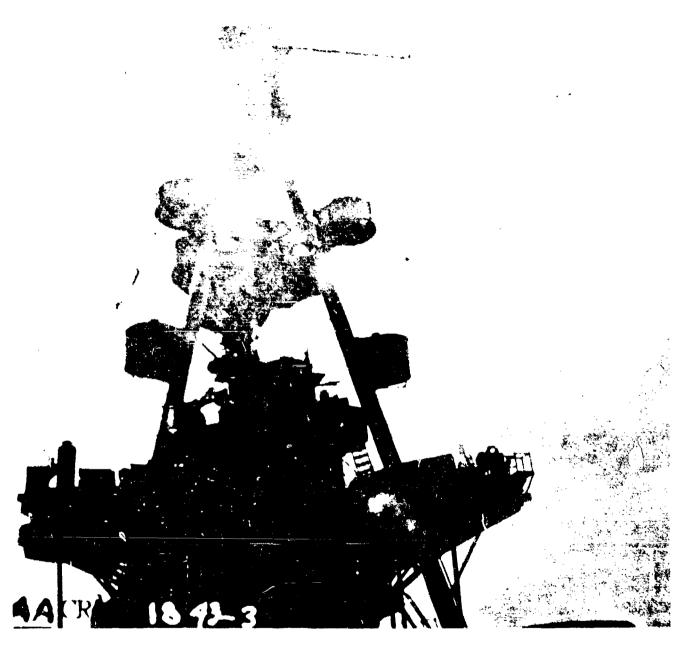
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POST ABLE - BENT FOREMAST. Illustrating the manner in which many radio and radar equipments were disabled by loss of antennas.

U.S.S. SALT LAKE CITY (CA 25)

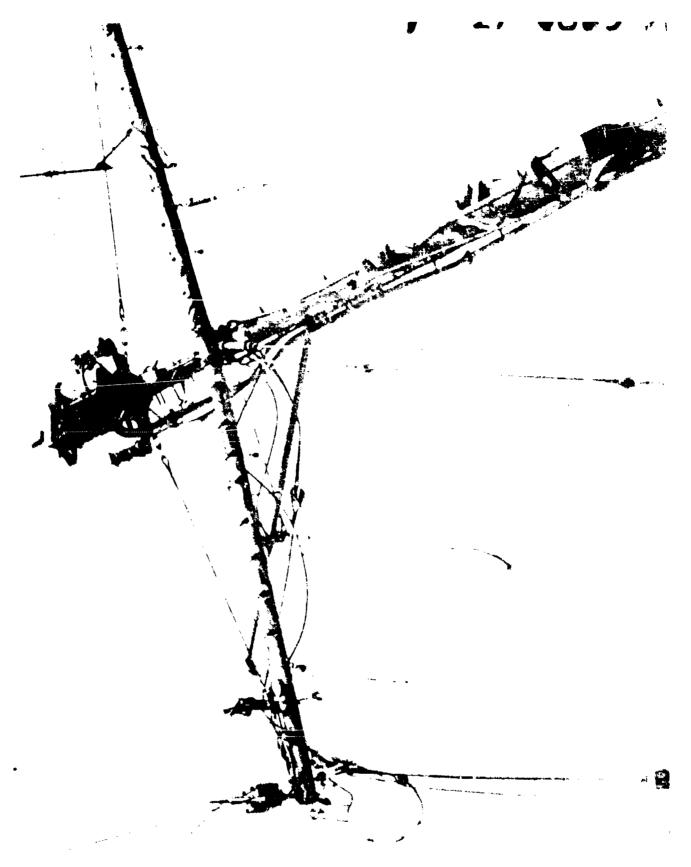
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<u>POST ABLE</u> _ FOREMAST. Foremast and superstructure looking forward. Notice bent SG mast, missing SK antenna, and broken communication antennas.

U.S.S. SALT LAKE CITY (CA 25)

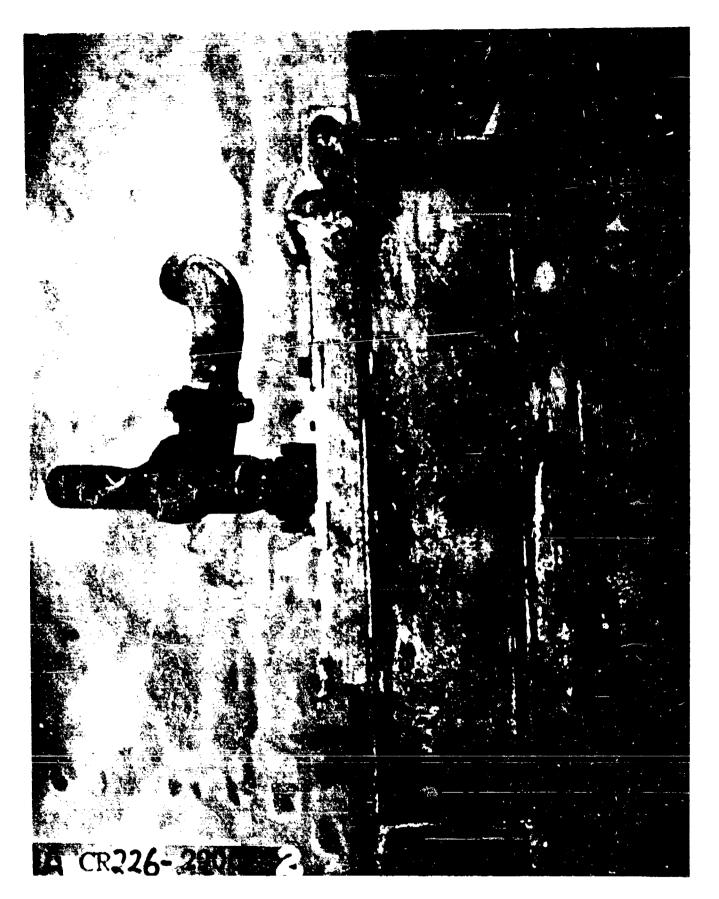
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POST ABLE _ FOREMAST. Both radio and radar antennas were broken.

U.S.S. SALT LAKE CITY (CA 25)

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FOST ABLE - SK AUTEUNA PEDESTAL. Antenna was completely blown nway. Similar damage occural to Sa antennas on four other major t rest ships. This type antenna, hecouse of its large size, was particularly susceptible to the Able blast.

U.S.S. SALT BAKE CITY (CA-25) 4569

Fage 70 of 274 pages



FOST ARLE - SK AVTERNA PEDESTAL. The coexial transmission line was bent as shown when the bedspring antenna was carried away by the blast. The antenna was torn loose from its mounting supports on top of the pedestal.

SECHAT

U.S.S. SALT LAKE CITY (CA-Co)

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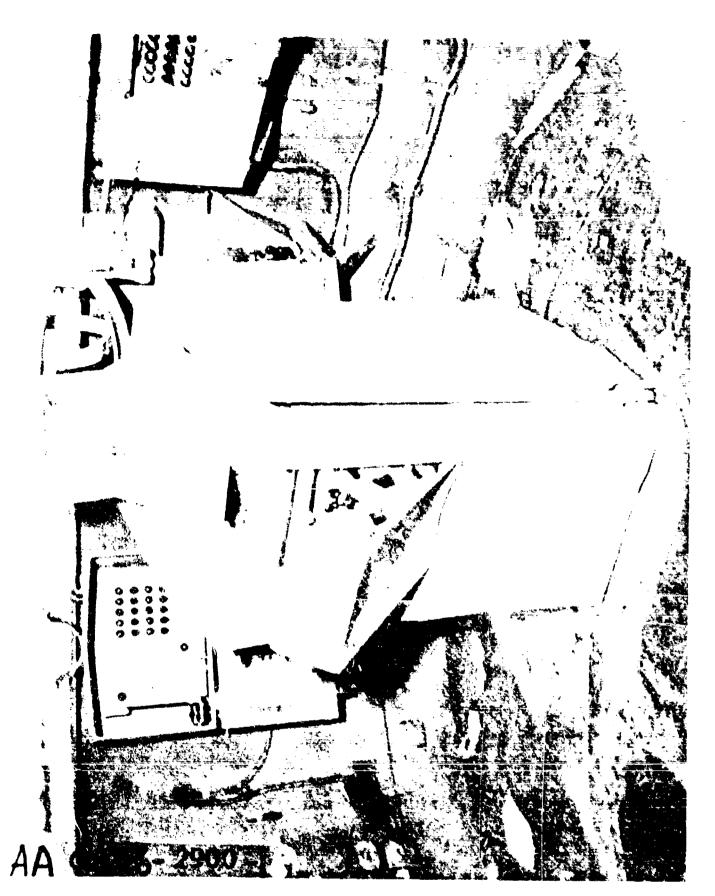


POST ABLE - TD1 ANIENNA. Langed esterna (See arrow.

<u> 320.67</u>

U. N. S. DALIT HARRI CLIFY (CA-DE)

2 (≈ 72)£274 (m. ‡3)



POST ABLE - VD-2 ON FURNARD SUPPRETRUCTURE, The VE-2 housing serffered some damage from the blast.

U.S.S. SALT LARE CITY (CA-Db)

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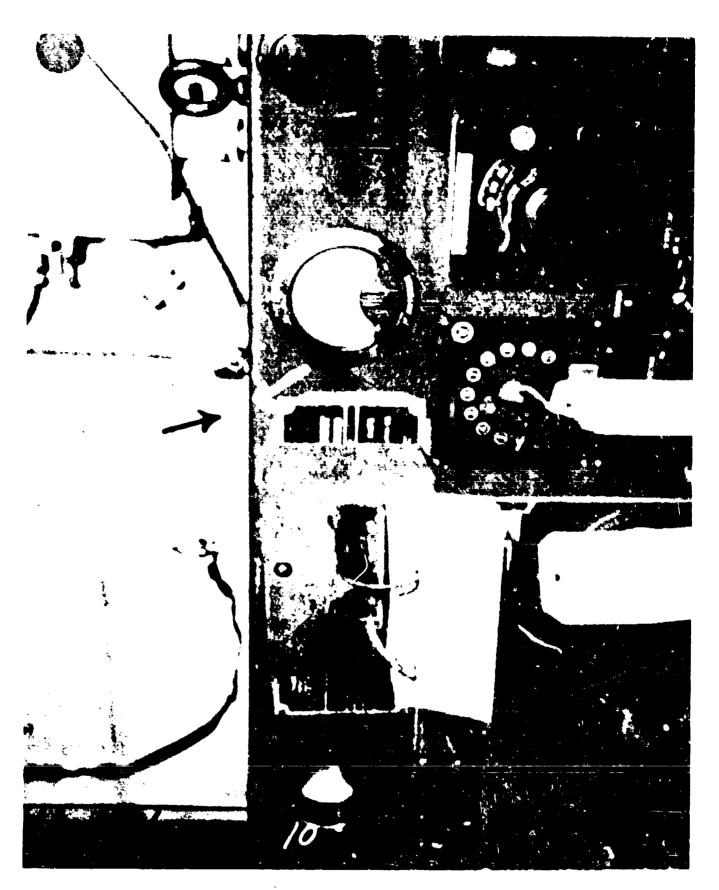


137 ABB - TAR Insulators on top of transmitter were broken (See mov).

STORET

U.S.S. SALT LAME CITY (CA-25)

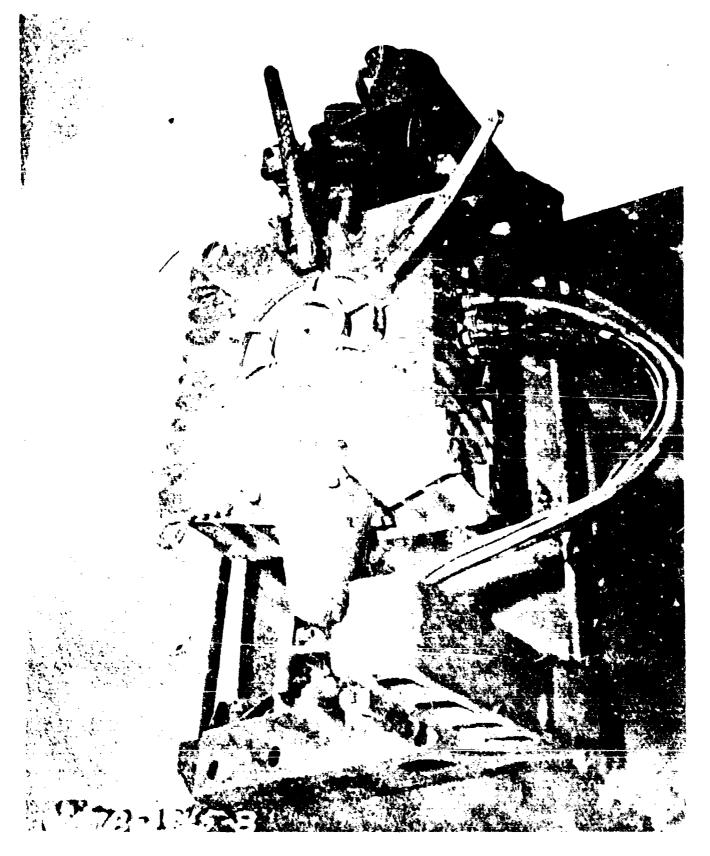
Fogs 74 of 274 pages



POST ABLE - TIE. Antenna lead-in insulator was broken (See arrow).

SECKET

U. 3. S. SALT LAKE SITY (CA-25) Fage 75 of 274 pages 4569



ANST ARLE - MK ON TRANSMITTER. The anterna was completely blown off.

U.S.S. SALT LARE CLTY (CA-CE)

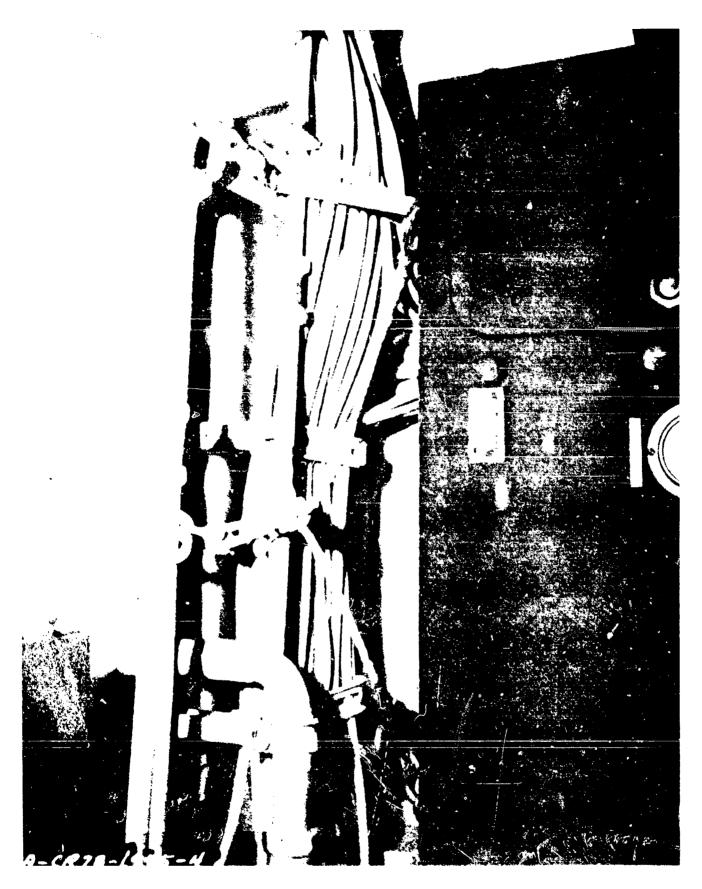
Fage 76 of 274 Jages



POST ABLE - MK 28 ANTENNA. NK 28 antenna as found on deck after test.

U.S.S. SALT LAKE CITY (CA-25)

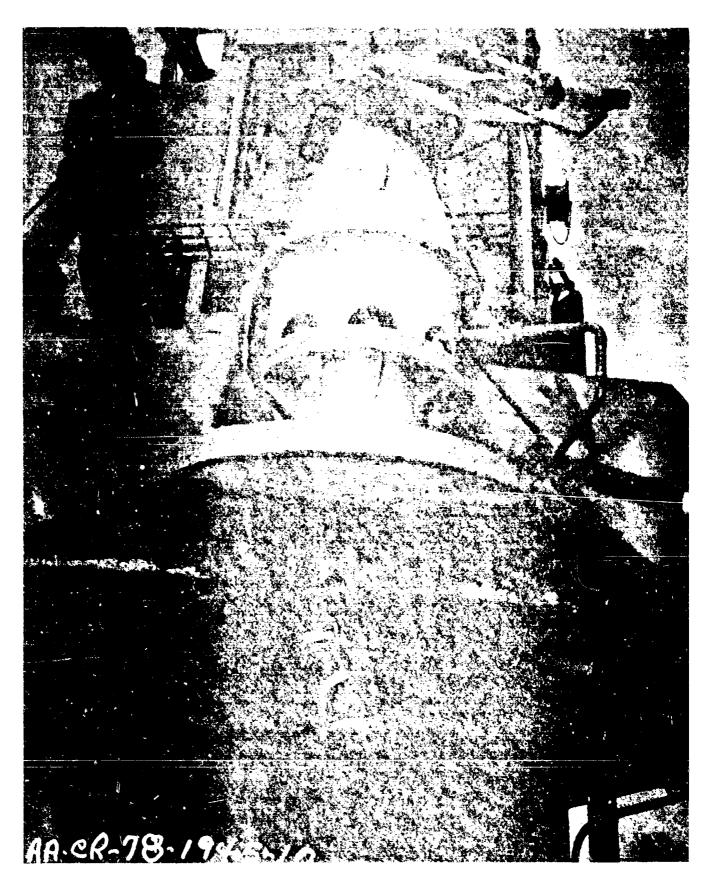
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POST ABLE - MK 3 RADAR. The coaxial line was damaged by movement of the mainframe during the blast (See arrow).

U.S. S. BALP LARE CITY (CA-25)

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POST ABLE - AFTER MK 7 ANDERNA PEDESTAL. The unself dense of Mk 3 antenna failure was the such antenna so they

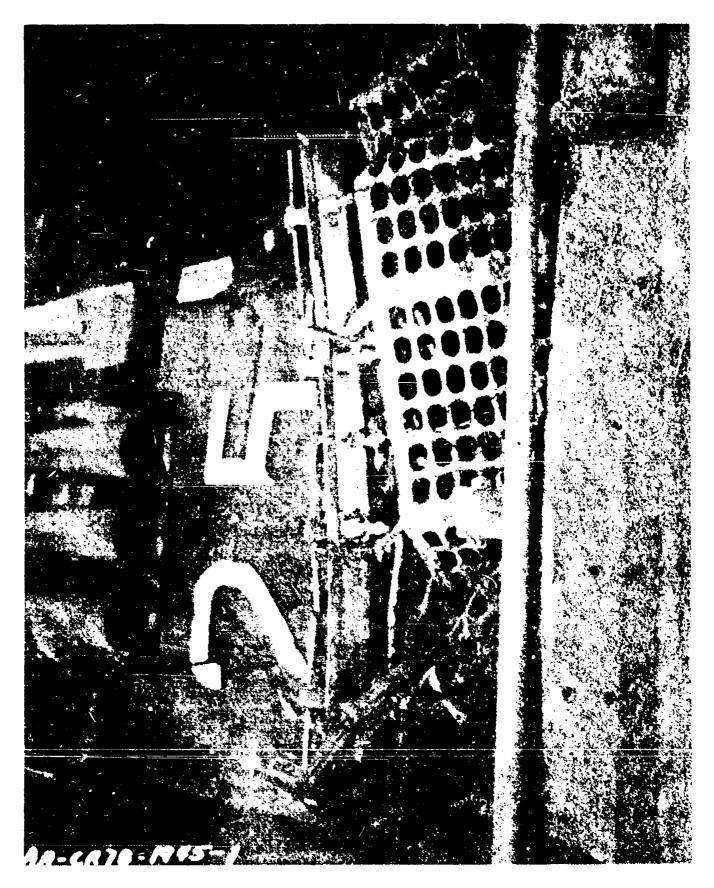


FOST ABLE - MK 4 RADAR. View of left side of main frame showing 705A clipper tube which was blown out of socket. The tabe filament was broken.

<u> 320.2T</u>

U.S.S. SALT LAKE CLIY (CA-25)

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POST ABLE - MK 4 ANTENNA. View from top of director. Reflector was smashed and dipoles were damaged.

U. S. S. SAUT LAND CITY (CA-OF)

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FORT ABLE - COAXIAL LINE. The MK 4 coax was broken and bent by the blast.

U.S.S. SALT LAKE CITY (CA-25)

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TEST ABLE

PRIL EUGEN (IX-300)

Range: 1200 yards

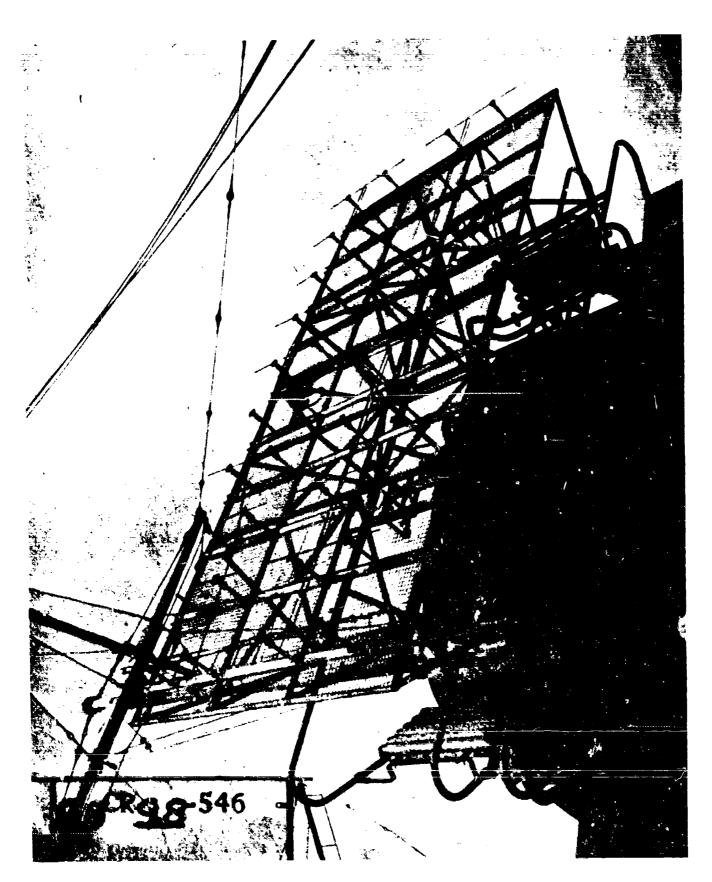
Bearing: 3000

The only serious damage to radar equipment was to the SQ search radar when it was knocked off its tripod mount and fell to the deck, and the jamming of the forward fire control director when it was knocked off its track. Other damage except to communication antennas, was light.

Some pictures of undamaged German equipment are included for general interest.

SECRET

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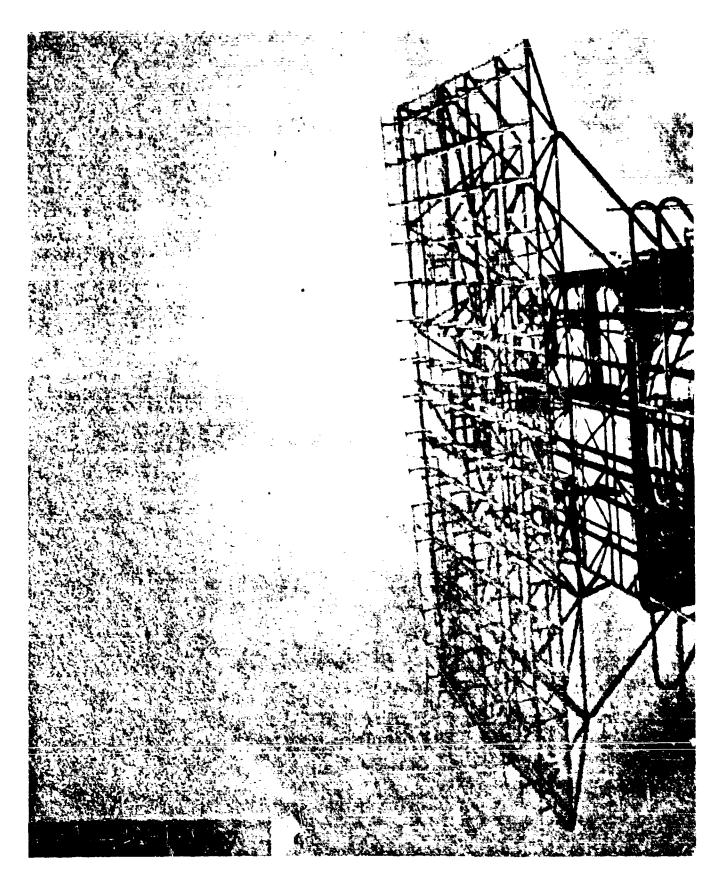


PRE-ABLE - GERMAN AFTER FIRE CONTROL RADAR ANTENNA. It may be seen that transmitted beam of German Fumo MK 25 is vertically polarized as compared to the horizontal polarization of the forward fire control radar (Fume MK 26).

SEURET

PHINZ EUGEN (IX-300)

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POST ABLE - GERMAN FORWARD FIRE CONTROL EADAR ANTERNA. Close up of German Fumo Mod 26 Fire Control Radar Antenna. A few dipoles were bent but not enough to prevent operation.

PRINZ EUGEN (IX-300)

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PREABLE - GERMAN FORWARD FIRE CONTROL AND USN SQ RADAR ANTENNAS. View of Fumo Mod 26 German Radar Fire Control Antenna. Below it can be seen a US NAVY SQ Portable Radar.

SECRET

PRINZ EUGEN (IX-300)

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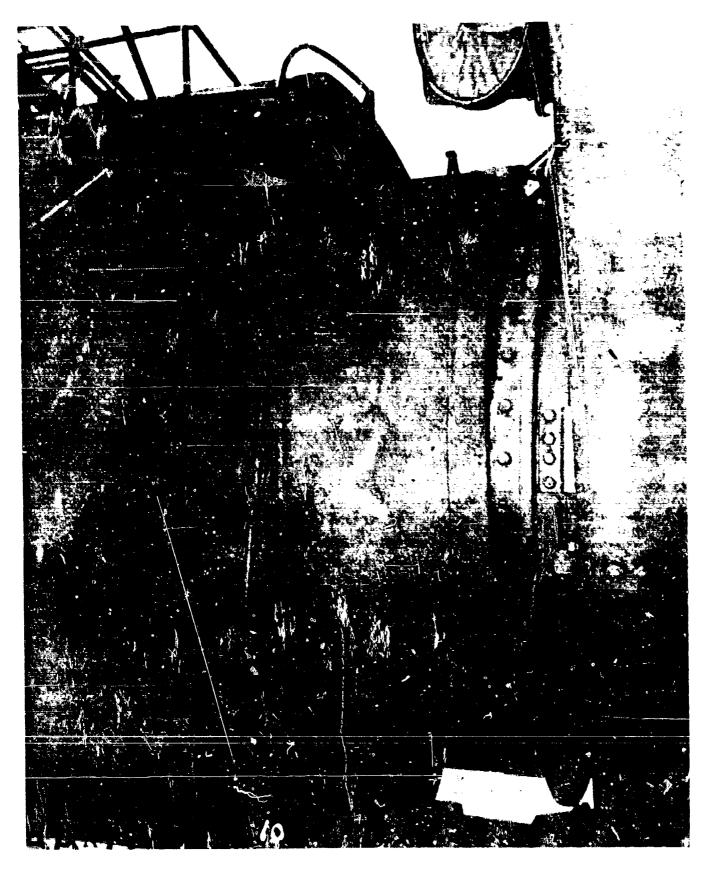


POST ABLE - USN SQ RADAR. Supporting legs broke, allowing equipment to tip over on deck. Shock mounts were broken and antenna was bent by blast. Minor damage was also done when equipment hit deck.

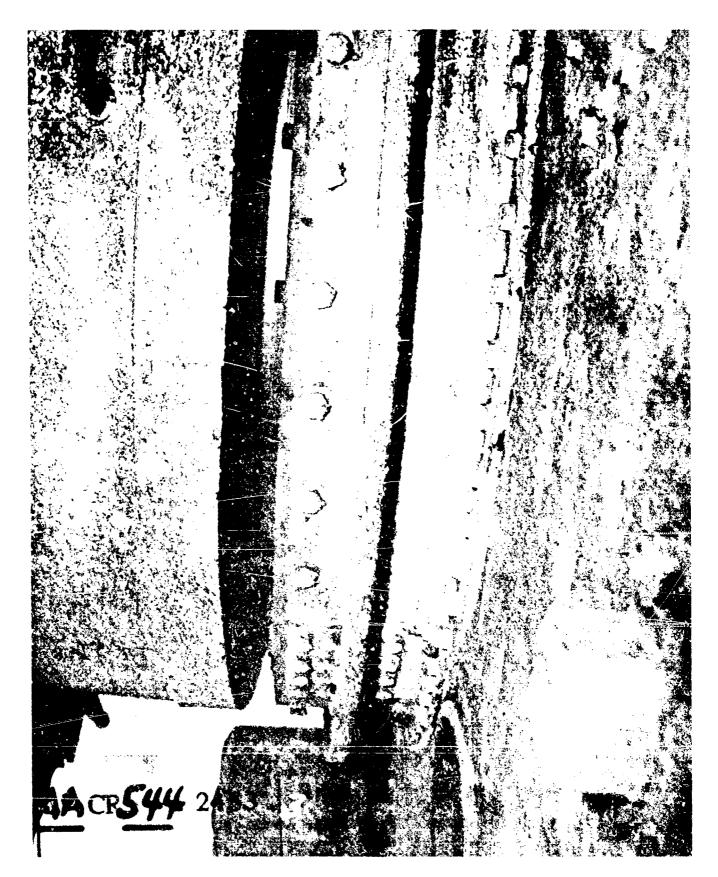
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PRINZ EUGEN (IX-300)

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FOS. ABLE - GERMAN FURNARD FIRE CONTROL FARMA DIRECTOR. Blost knocked director off its track and tipped it back t degrees. Director was only held by about 6 bolts, which sheared off.

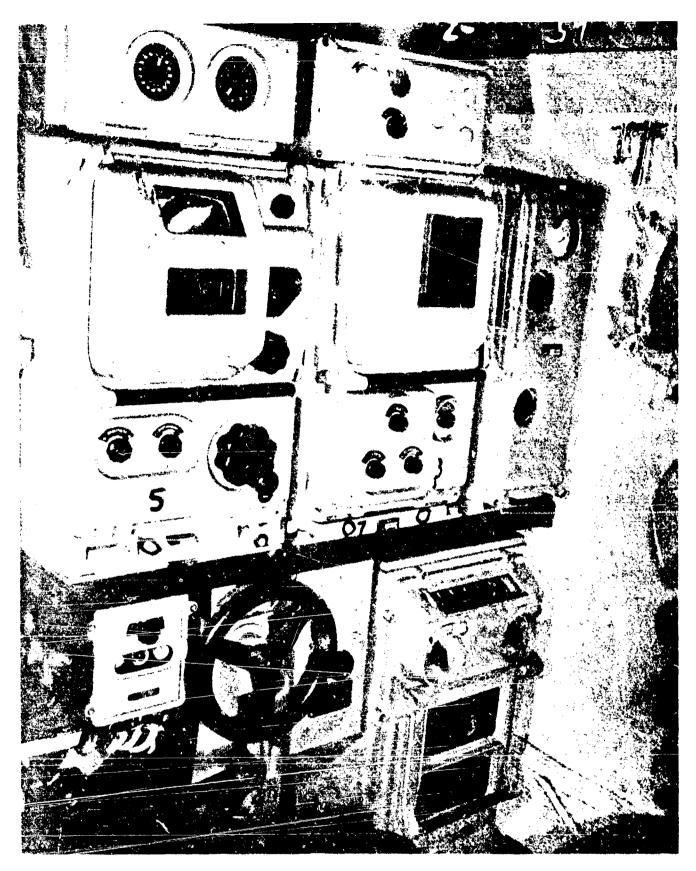


POST ABLE - GERMAN FORWARD FIRE JONTROL RADAR DIRECTOR. Close up of director. This director was knocked back in place by the Test Baker explosion and then operated perfectly.

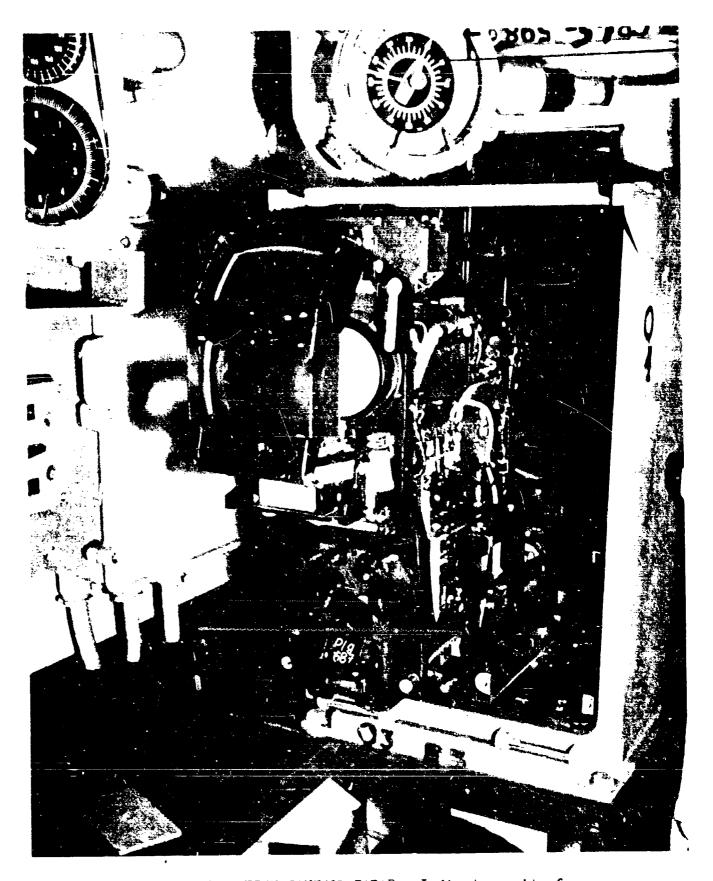
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PRINZ EUGEN (IX-300)

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PRE ABLE - GERMAN FORWARD FIRE CONTROL RADAR. Part of main-frame of German Fumo MK 26 Radar. Of interest are the cast aluminum panels and also the locking mechanism which locks units in main-frame with single movement of handle.



PRE ABLE - GERMAN FORWARD FIRE CONTROL RADAR. Indicator unit of German Fumo MK 26 Radar, with front panel removed. The Germans were very successful in designing this equipment so that it used the minimum number of vacuum tubes, and also in standardizing tube types so that very few types had to be carried for replacements.

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PRINZ EUGEN (IX-300)

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TEST ABLE

U.S.S. INDEPENDENCE (CVL_22)

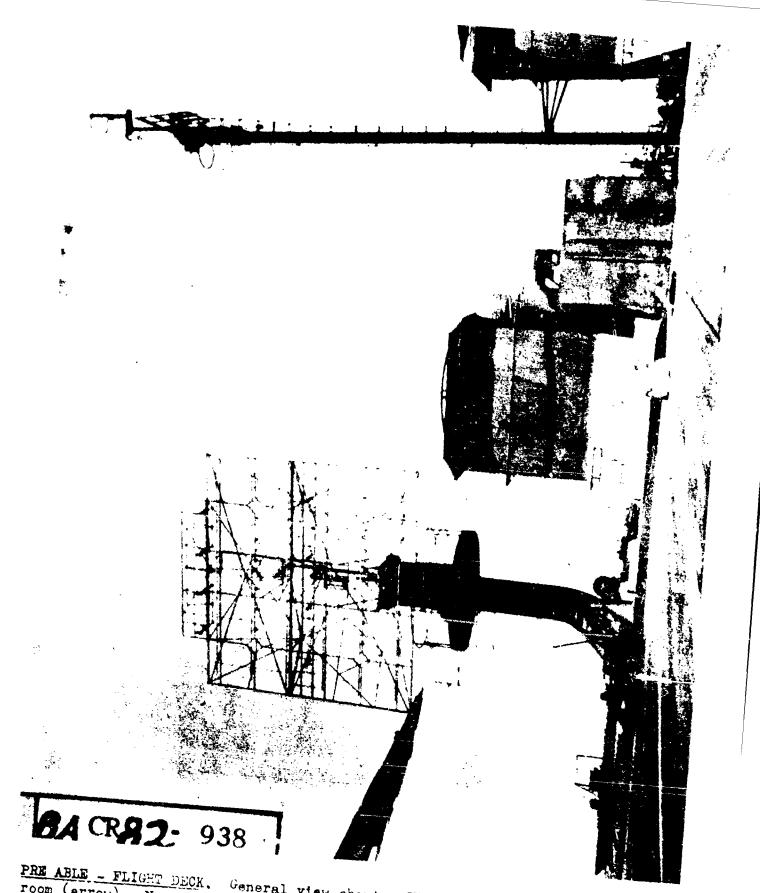
Range: 700 yards

Bearing: 1250

This ship suffered the heaviest electronic damage of any surviving ship in Test ABLE. These pictures contain some of the best examples of damage along with good before and after comparisons.

SECRET

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PRE ABLE - FLIGHT DECK. General view showing SK antenna and YM room (arrow). Note YG and CPN-6 antenna on mast.

U.S.S. INDENDENCE (CVL-22)

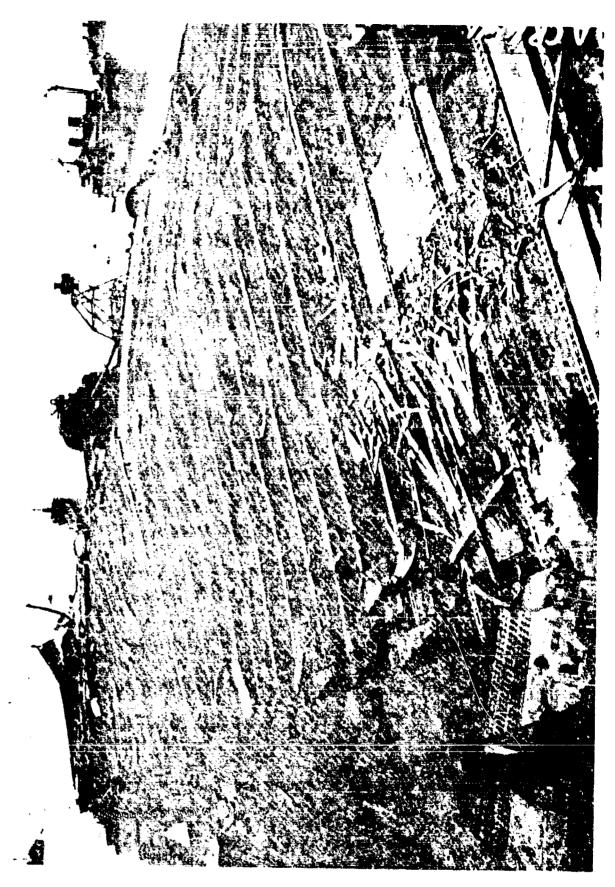
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POST ABLE - FLIGHT DECK. View looking aft along starboard side. In center is shown remains of SK antenna and tower upon which it was mounted. All objects extending above level of flight deck were either blown clear or bent over to starboard.

U.S.S. INDEPENDENCE (CVL_22)

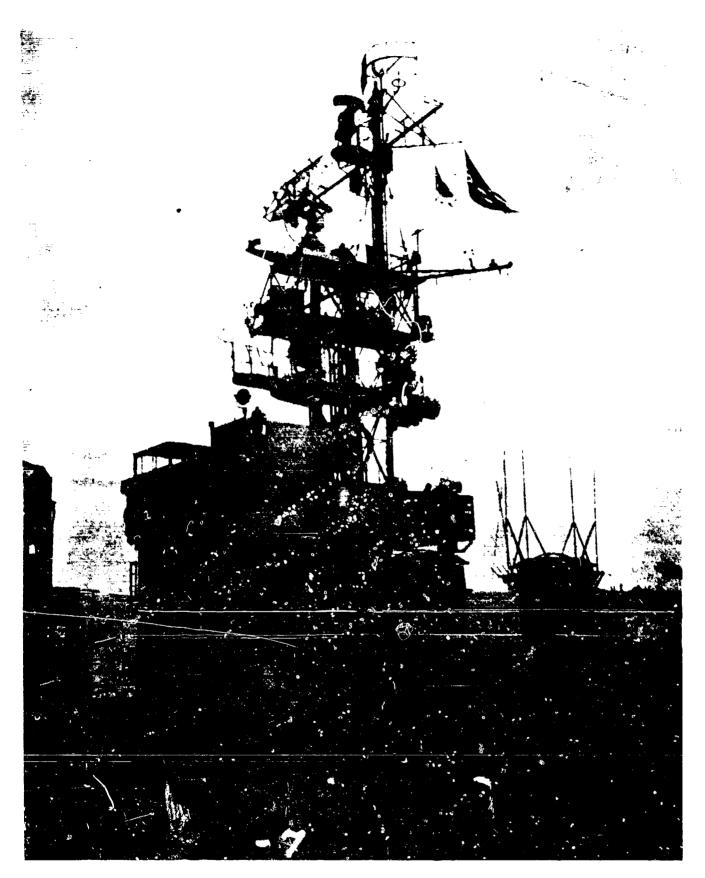
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POST ABLE - FLIGHT DECK. Gan ust view looking aft from top of remaining part of island.

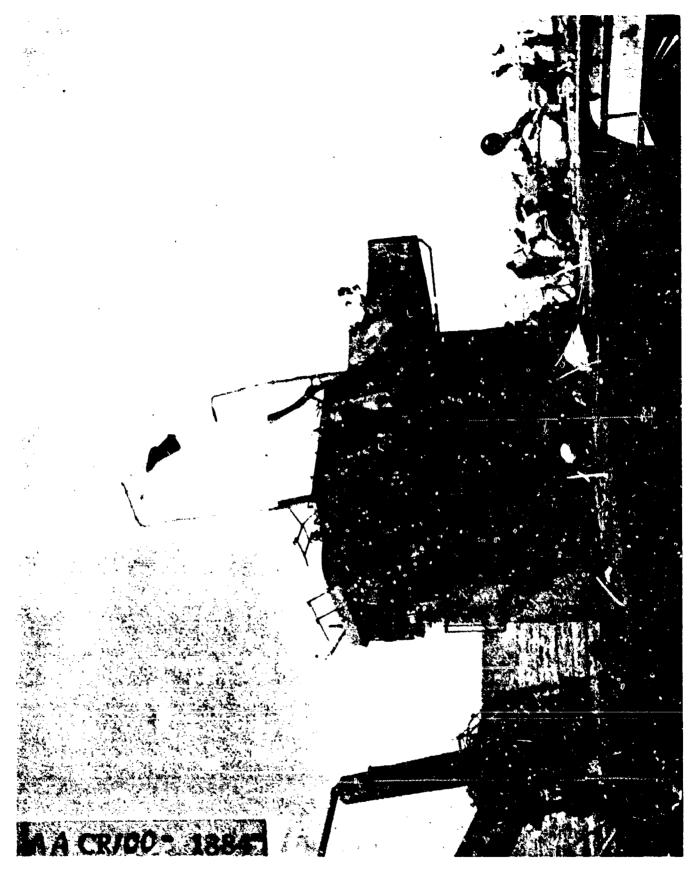
U.S.S. INDEFENDENCE (CVL-22)

Take 95 of 274 bages

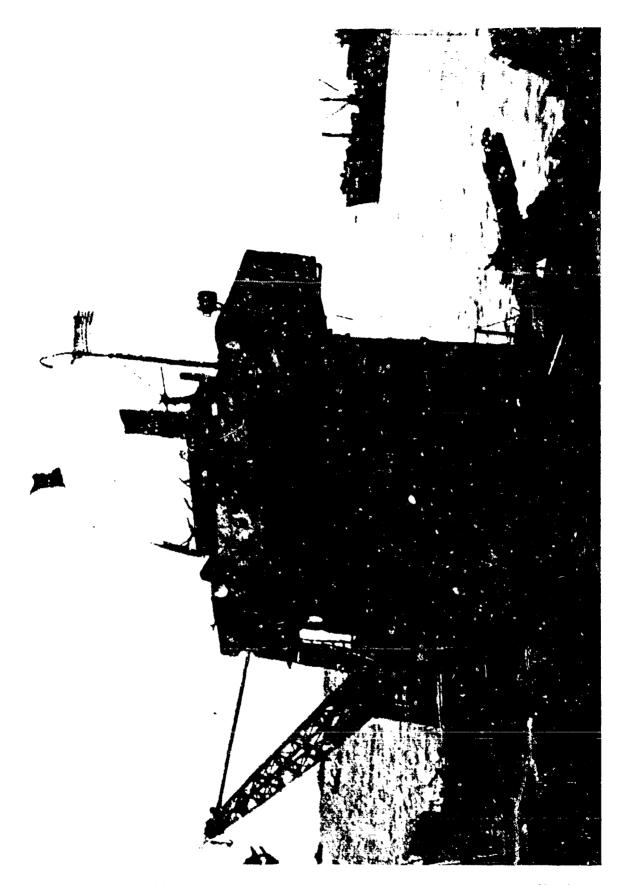


PRE ABLE - ISLAID. General view of island structure.

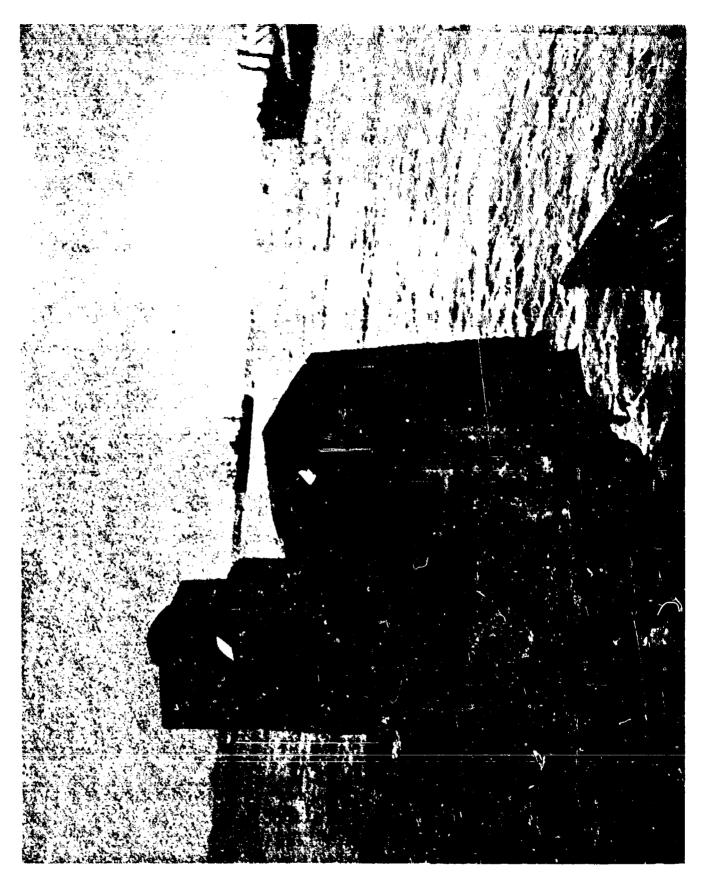
U.S.S. INDEFENDENCE (CVL-22)
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POST ABLE - ISLAND. General view of island structure.



POST ABLE - ISLAND. View of island structure from center of flight deck.



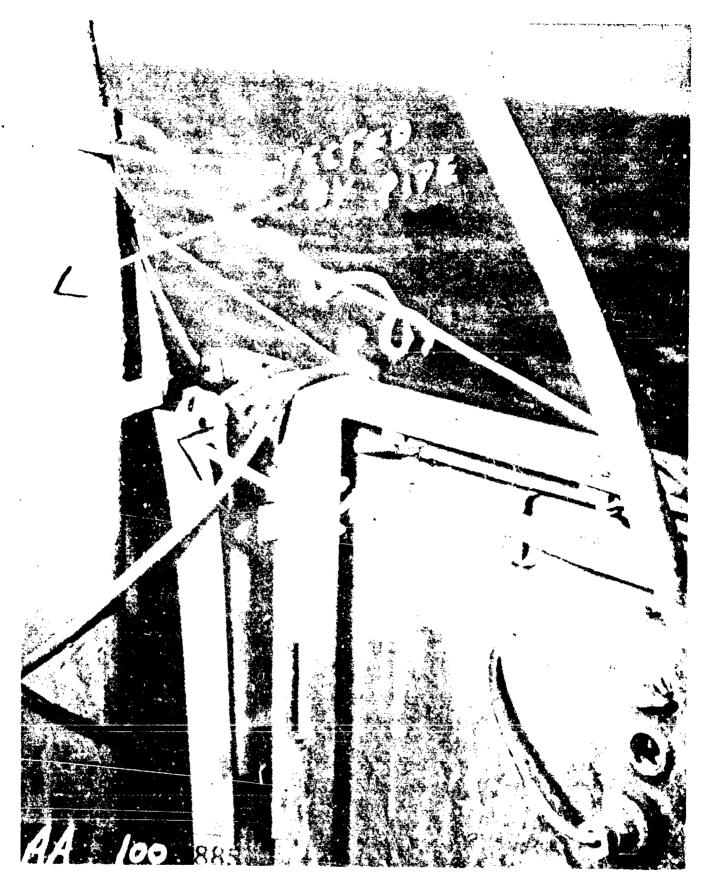
POST ABLE - YM ROOM. Bulkheads were caved in by blast.

U.S.S. IMDEPRIDENCE (CVL-22)

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POST ABLE - SK TOWER. Close-up view of immage.



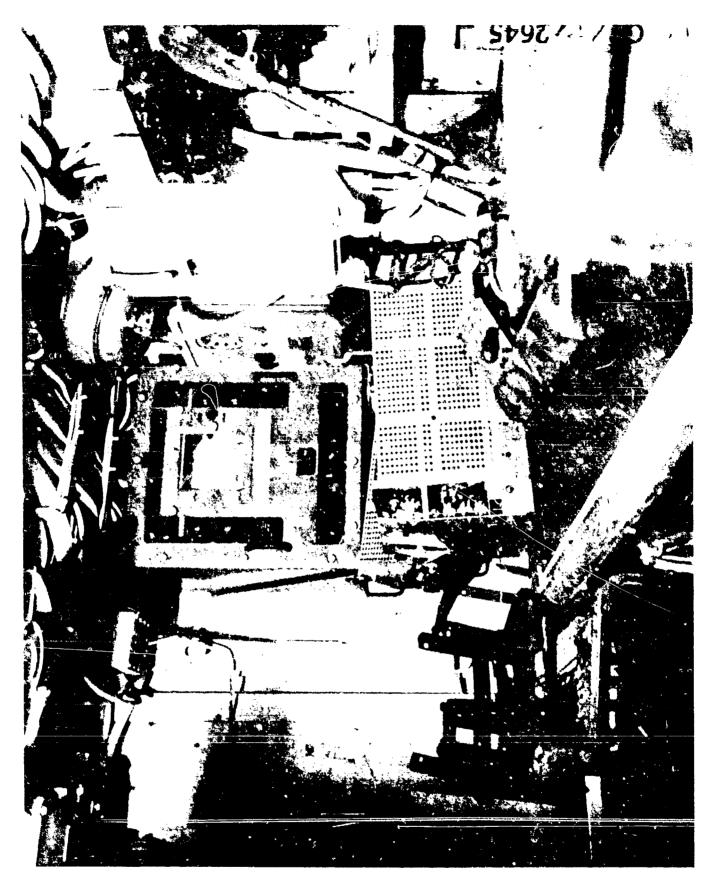
POST ABLE - WAYN CLIDE. Shows sheared off unprotected guide adjacent to continuing run of protected guide in pine. (Arrow)



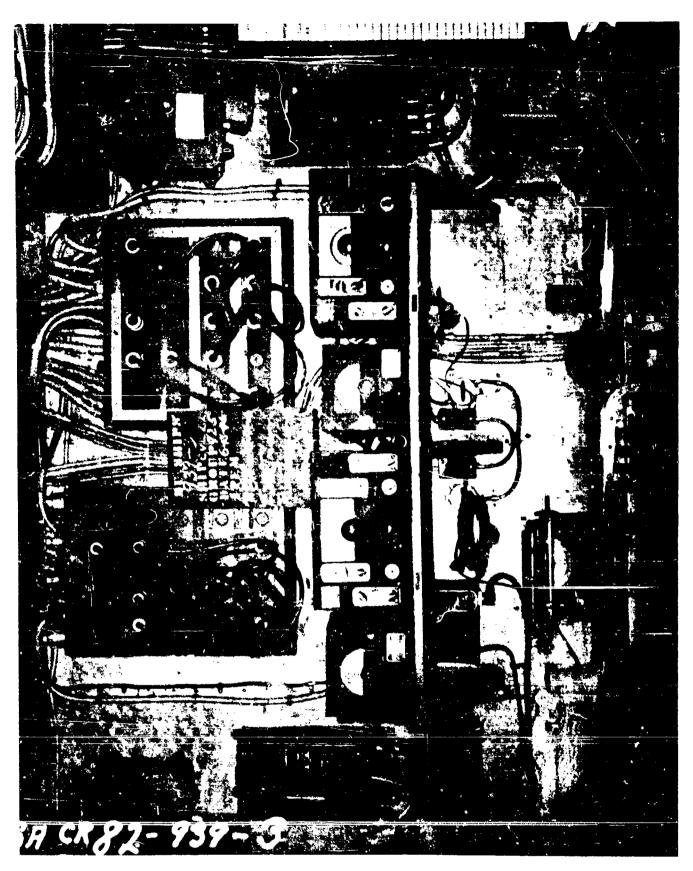
POST ABLE - WAVE GUIDE. Effect of blast on protected and unprotected waveguide. The protected guide was the highest remaining part of the island, and was used to jury-rig the Post Able signal halyards.

U.S.S. INDEPENDENCE (CVL-22)

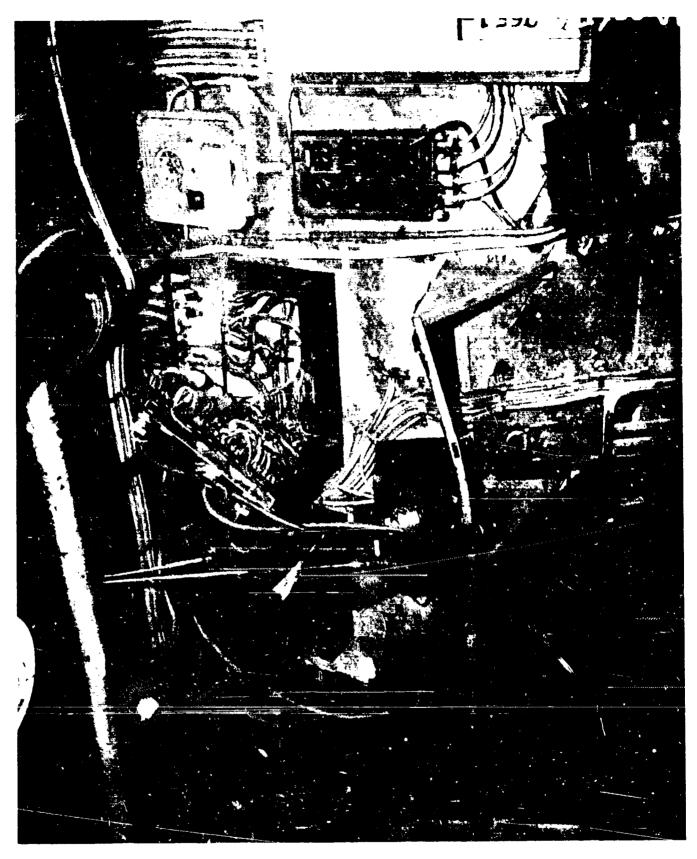
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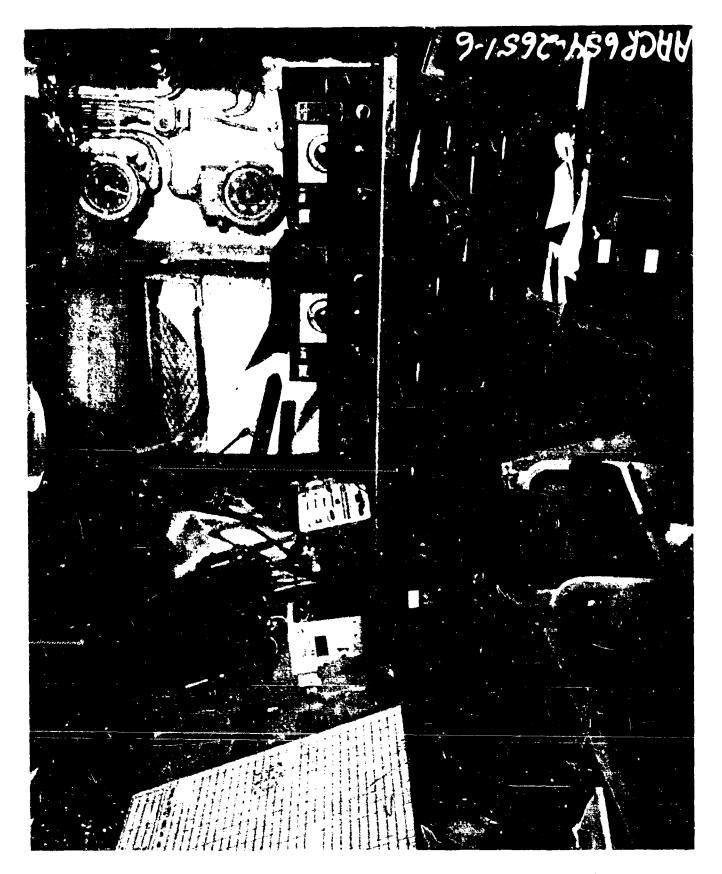
<u>FOST ABLE - CHART ROOM</u>. NMB-1 and DAS-3 in chart-room. The DAS foundation and cabinet were warped and bent.



PRE ABLE - CIC. Showing after bulkhead with radio equipment and transfer manels.



POST ARLE - CIC. After bulkhead, showing damage caused by bulk-nead buckling.



POST ABLE - CIC PORT SIDE APT. Corner of CIC bulkhead was dished in, causing collapse of desk.

U.S.G. INDEPENDENCE (CVL-22)

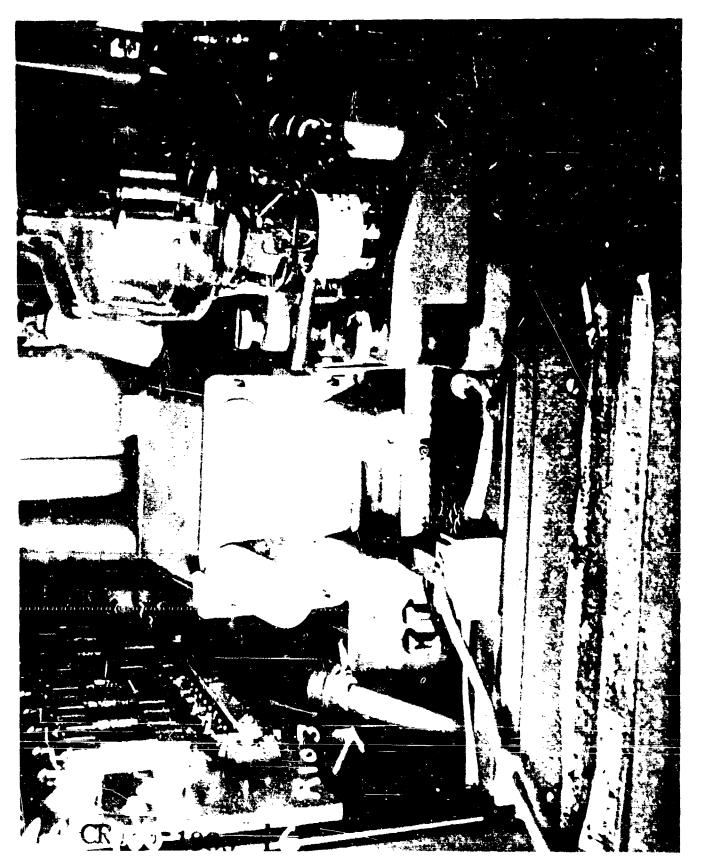
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POST ABLE - SK RADAR ROM SK indicator and all other equipment either thrown out of cases and hanging on caples or toppled from foundations. Note bro kage of terminal strip mounting in emipment in left foreground. Also SK transmitter in center background tipped over to left with coas broken off at top.

U.S.S. 17008 - 13 03 (CVL-22)

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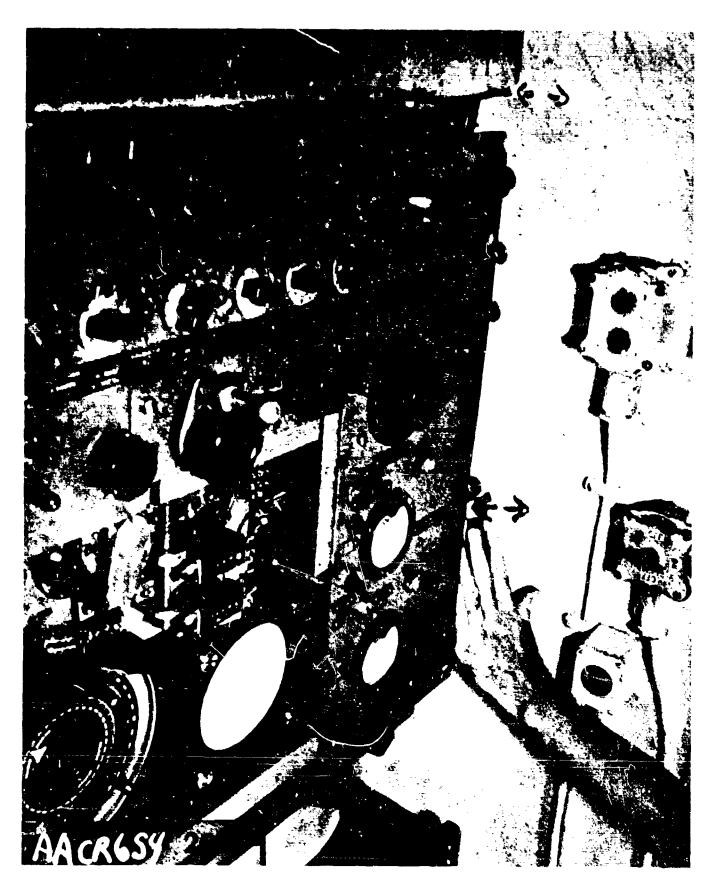


POST ABLE - INTERIOR OF SG MAIN FRAME. C-102 mounting insulators were broken. All insulators broke out at ends where tapped for mounting screws. Equipment suffered badly from shock as main frame mounting bolts sheared, allowing equipment to strike bulkhead. Also note R103 (arrow) which dropped out of clip when similiar stand-off insulator at one end broke.

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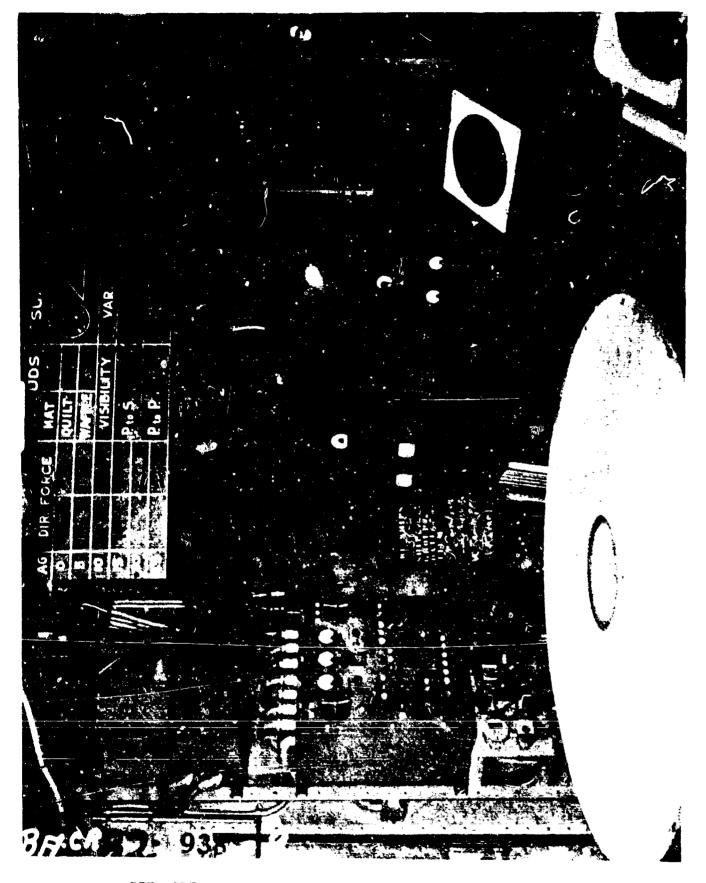
U.S.A. INDEPENDENCE (CVL-22)

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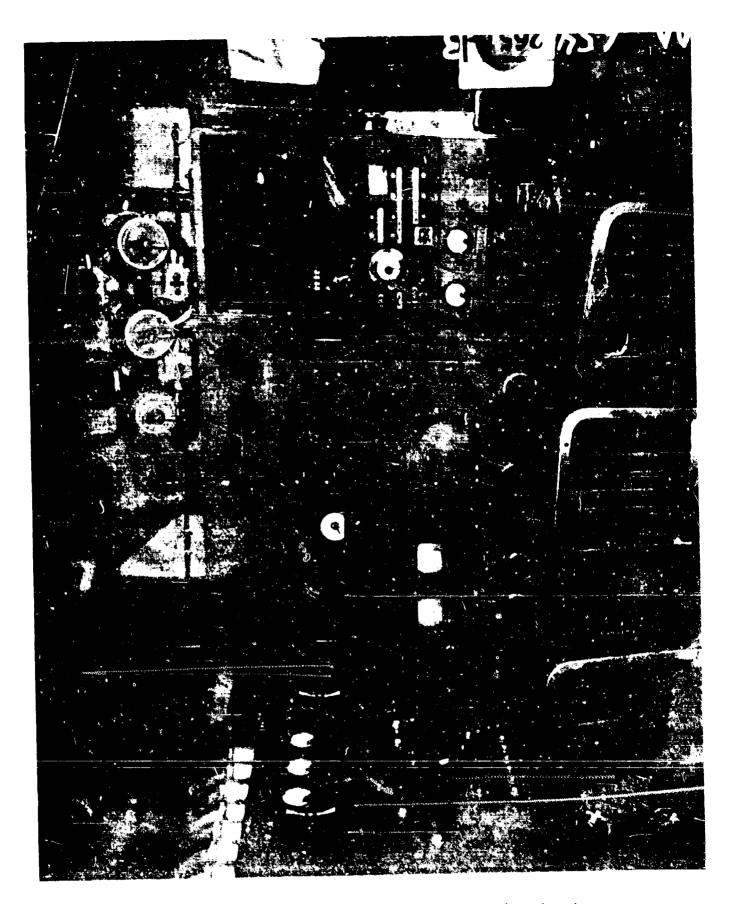


POST ABLE - SGa INDICATOR. This view shows how SG indicator foundation moved to starboard. There was no damage to the indicator itself.

U.S.S. INDEPENDENCE (CVL-22)
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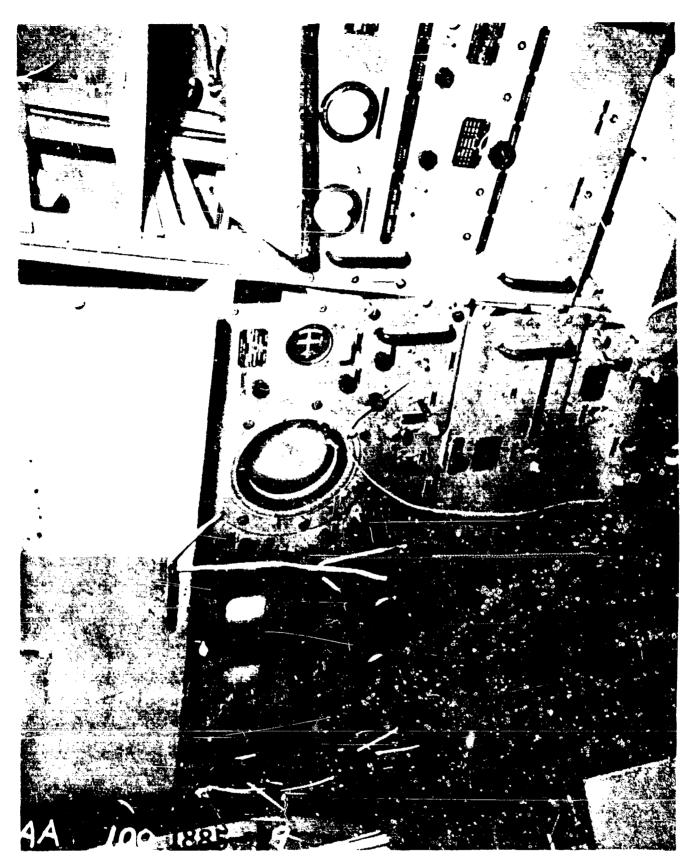
PRE ABLE - SK CONSOLE. General view.



POST ABLE - SM CONSOLE. Frame was distorted to the right, jamming the drawers.

U.S.S. TRDEPRODUTE (CVL-21)

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<u>POST ABLE - SPARE SM COMSOLE.</u> Close up of distorted frame and jammed shelves.



POST ABLE - VD-2 Equipment on open bridge. Welds parted on foundations, and subsequent movement of VD-2 parted cables. Housing sides were warped and top blown off, but VD-2 was, apparently undamaged.

U.S.7. INDERENDENCE (CVL-22)
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TEST ABLE

U.S.S. RALPH TALBOT (DD_390)

Range: 1200 yards

mounts are shown here.

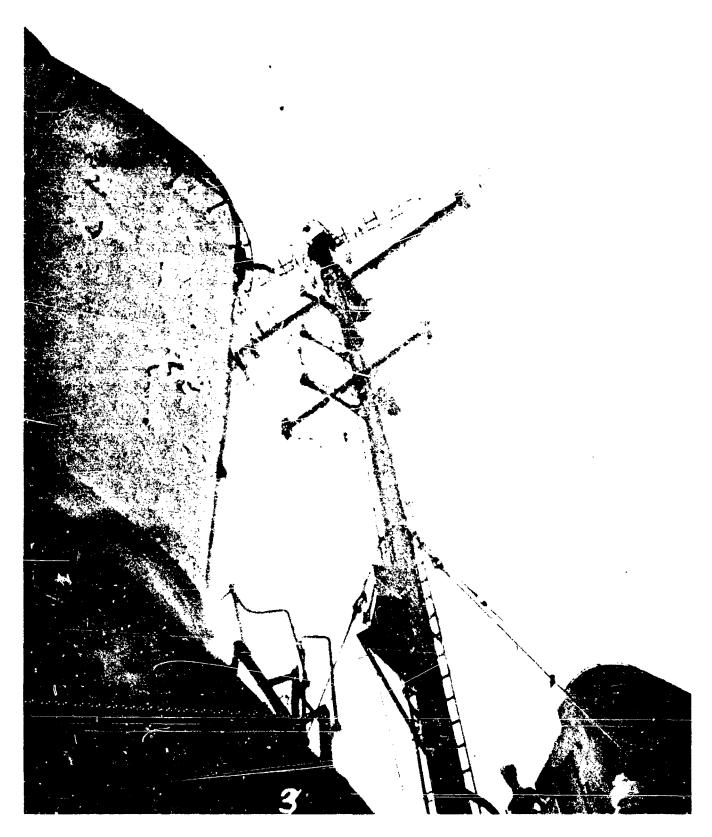
Bearing: 090°

This ship sustained moderate damage to electronic equipment.

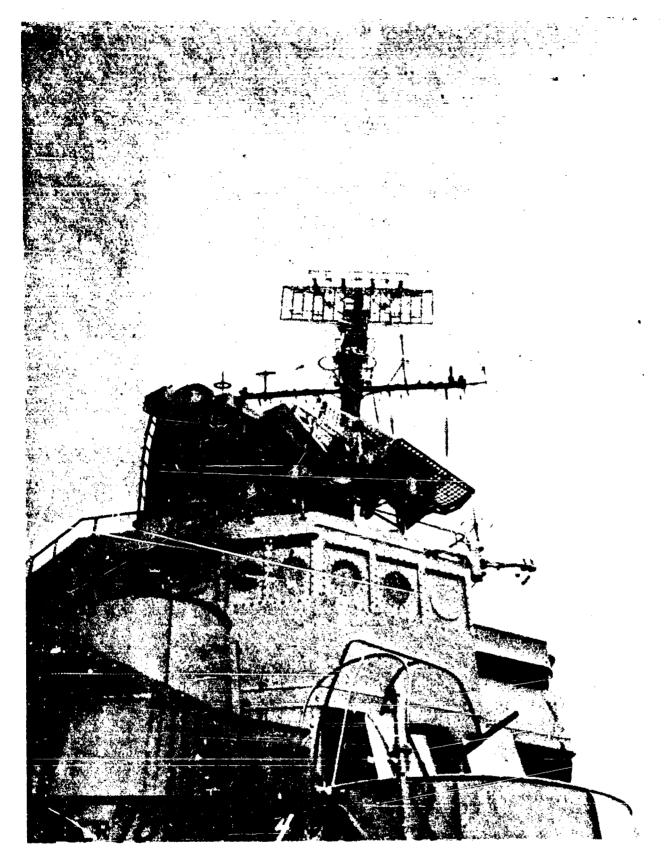
Torn waveguide, broken communications antennas and ruptured shock

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SECRET



<u>POST ABLE - FOREMAST</u>. View of SC and other antennas. A slight bend in mast is visible, but it did not cause any damage to equipment.



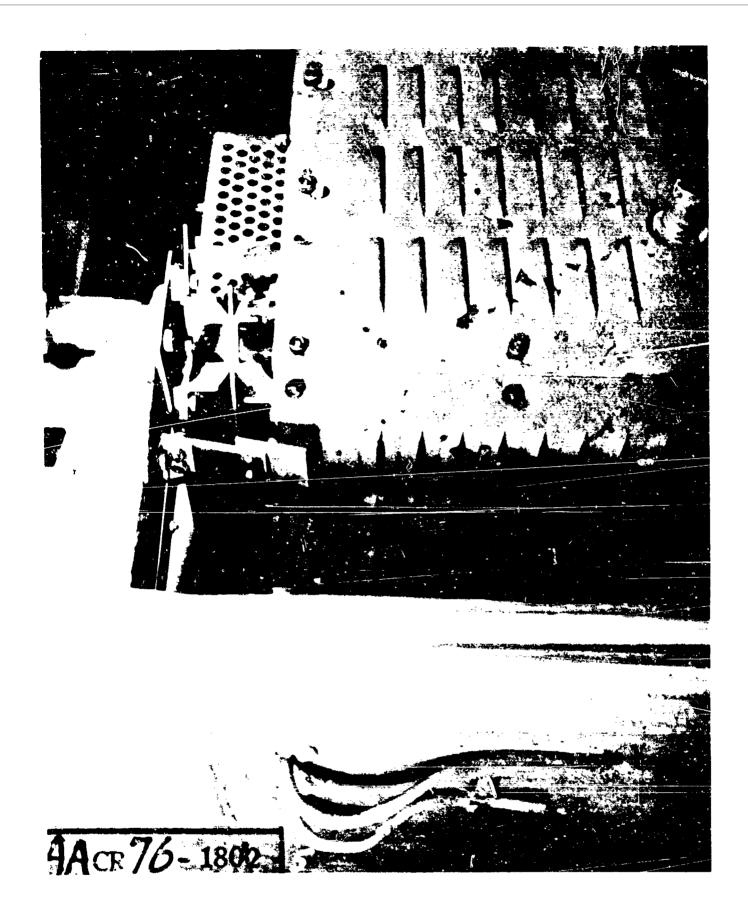
POST ABLE _ FOREMAST AND MAIN BATTERY DIRECTOR. Neither the SC or MK 4 radar antenna was materially damaged.

U.S.S. RALPH TALBOT (DD 390)

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POST ABLE _ SG WAVE GUIDE. Waveguide was damaged by flying piece of metal, but the equipment was still operative.



POST ABLE _ SC_3 RADAR. This view of top of main frame illustrates a typical shock mount failure. The rubber usually pulled off at the metal to rubber seal, but sometimes the rubber pulled apart.

U.S.S. RALPH TALBOT (DD 390)

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TEST ABLE

U.S.S. RHIND (DD_404)

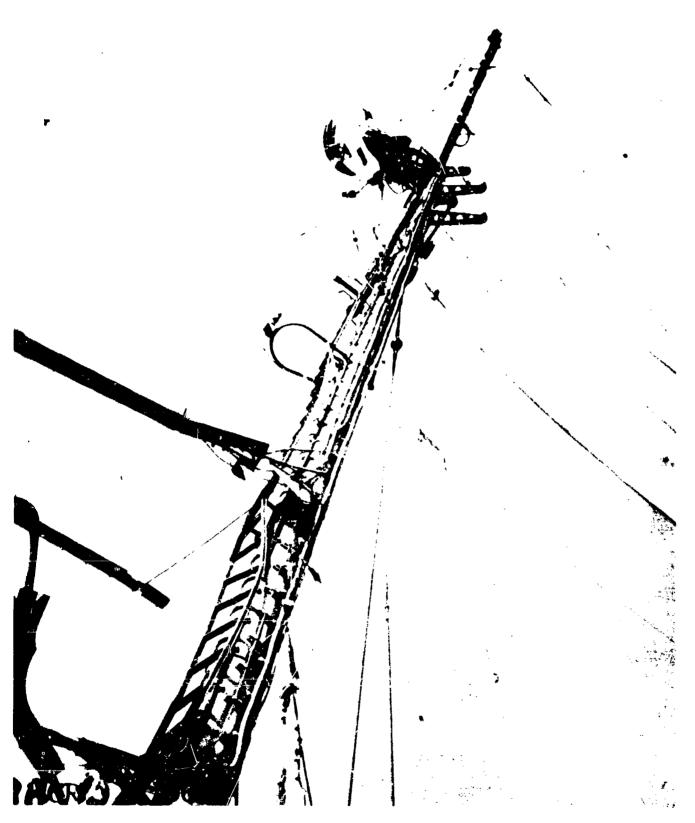
Range: 900 yards

Bearing: 005°T

This vessel suffered major topside damage to communication and radar equipment. Units below decks suffered only minor damage due to buckled bulkheads.

SECRET

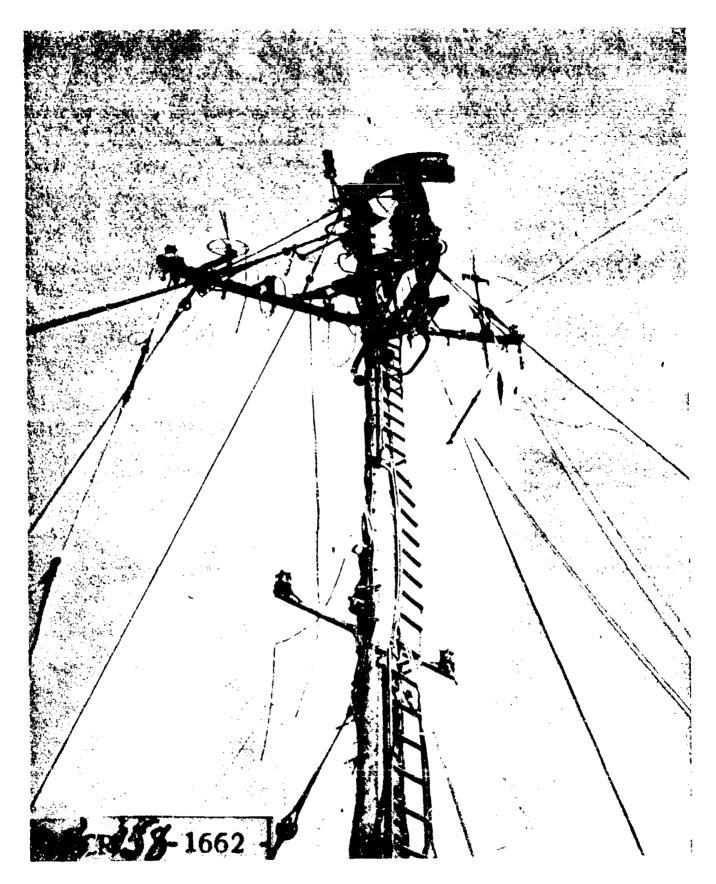
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<u>POST ABLE - MAST</u>. View from below the crossarm shows how the mast bent aft at its base and tore away from its bracing. The top section bent forward about 60° ϵ the crossarm, leaving the SG antenna about 40° off normal position.

U.S.S. RHILD (DD-404)

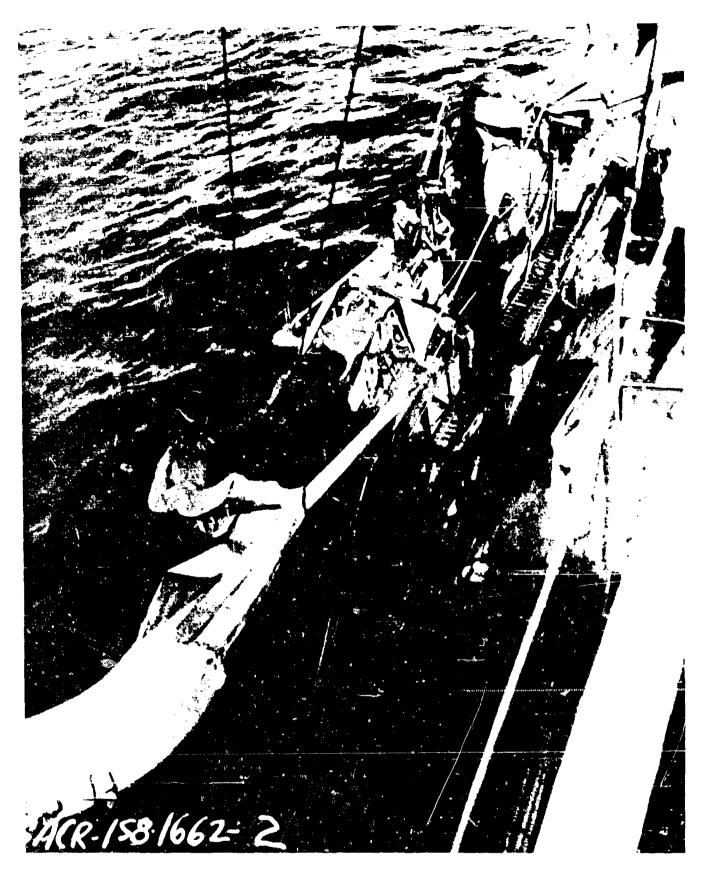
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POST ABLE - MAST. View of top of mast showing the loss of SG wave guide and general damage to antenna. Mast is bent about 60° at crossarm in direction of camera.

U.S.S. RHIND (DD-404)

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<u>POST ABLE - SG WAVEGUIDE</u>. View showing the SG waveguide after being blown off the mast.

U.S.S. RHIND (DD-404)

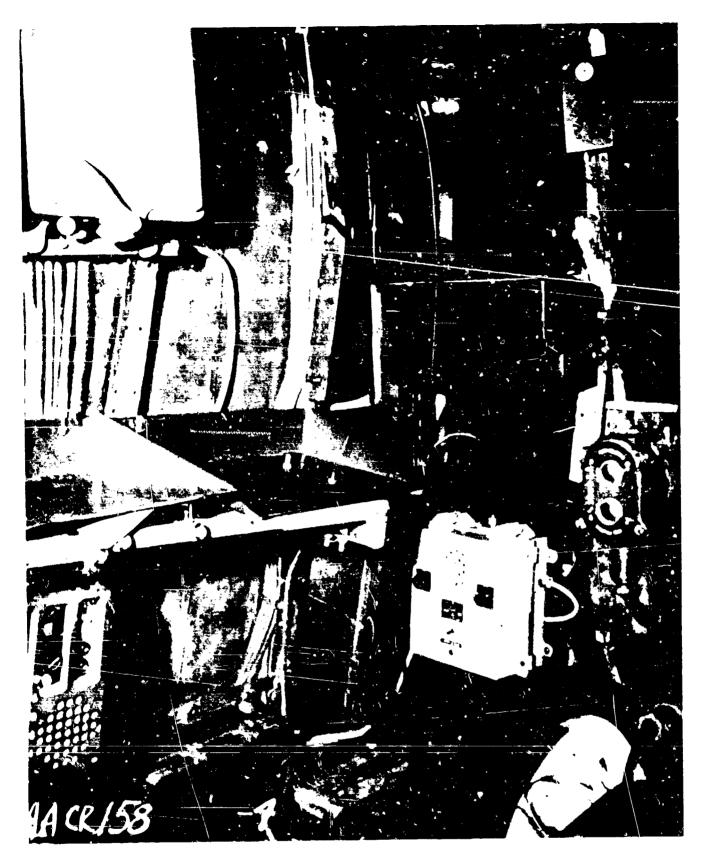
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POST ABLE - CIC ROOM. Miscellaneous damage caused by bulging bulkheads.

U.S.S. RHIND (DD-404)

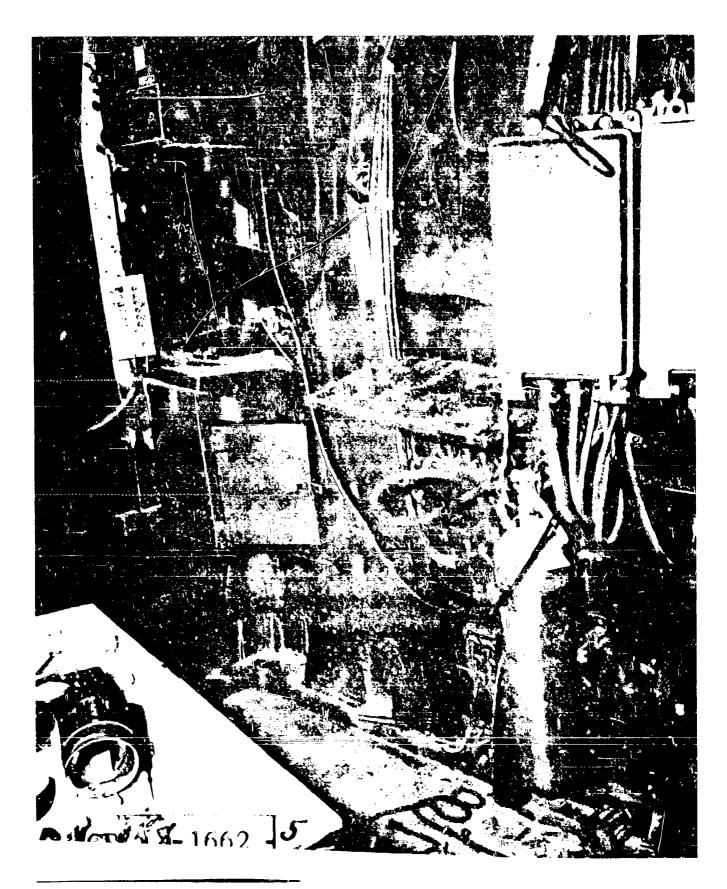
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POST ABLE - CIC ROOM. Miscellaneous damage caused by bulging bulkheads.

U.S.S. RHIND (DD-404)

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POST ABLE - CIC ROOM. Miscellaneous damage caused by buckled bulkheads.

TEST ABLE

U.S.S. STACK (DD-406)

Range: 1200 yards

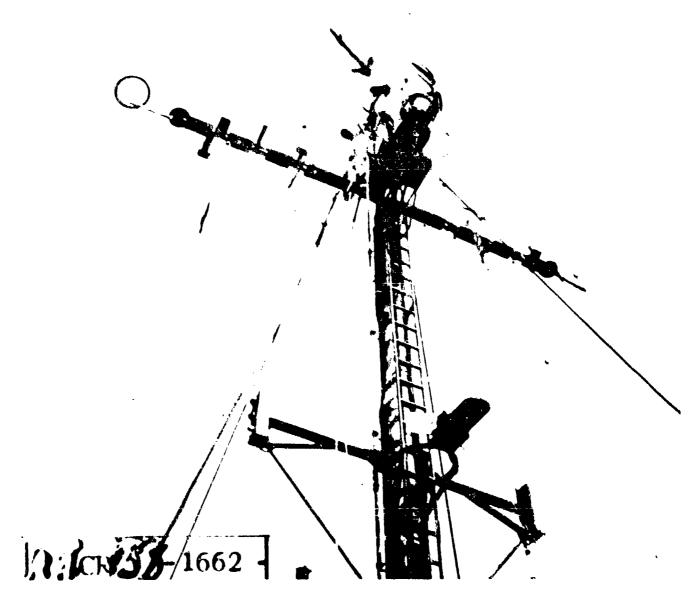
Bearing: 340°

The single photograph shows the principal topside damage suffered on this vessel. Other damage consisted of numerous communication antennas down.

There was no damage to below decks installations.

SECRET

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POST ABLE - MAINMAGT. SU-2 antenna was swept away from the top of its pedestal (arrow). The pedestal was left intact. The SG antenna and various other antennas on the yardarm were left intact.

U.S.S. STACK (DD 406)

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TEST ABLE

U.S.S. HUGHES (DD_410)

Range: 900 yards

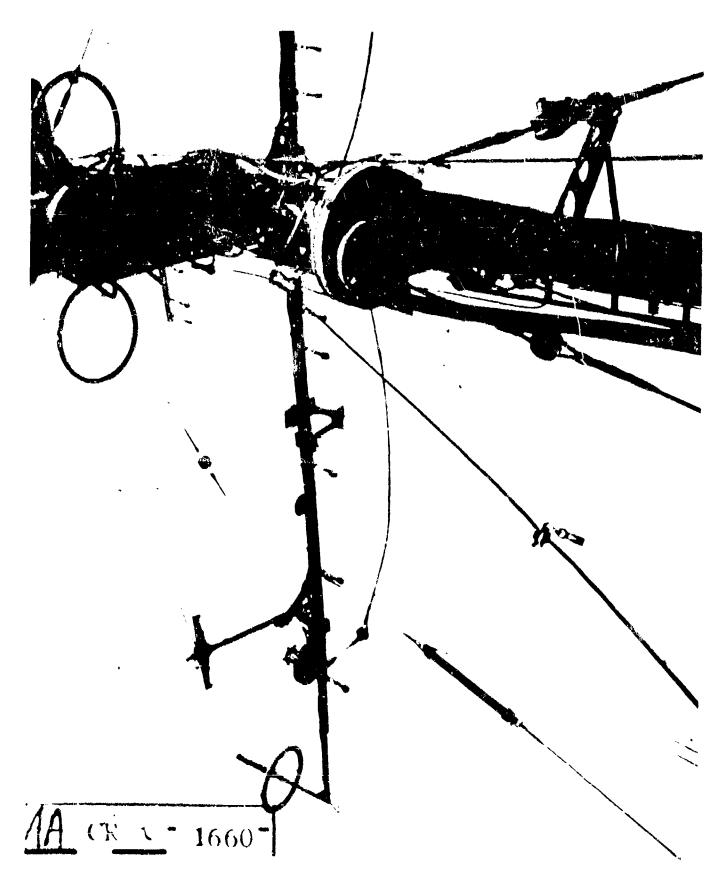
Bearing: 0950

This ship suffered heavy external damage from test ABLE and these photographs of antenna destruction cover all principal damage.

Note that the SG antenna is the only undamaged radar antenna remaining.

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SECRET



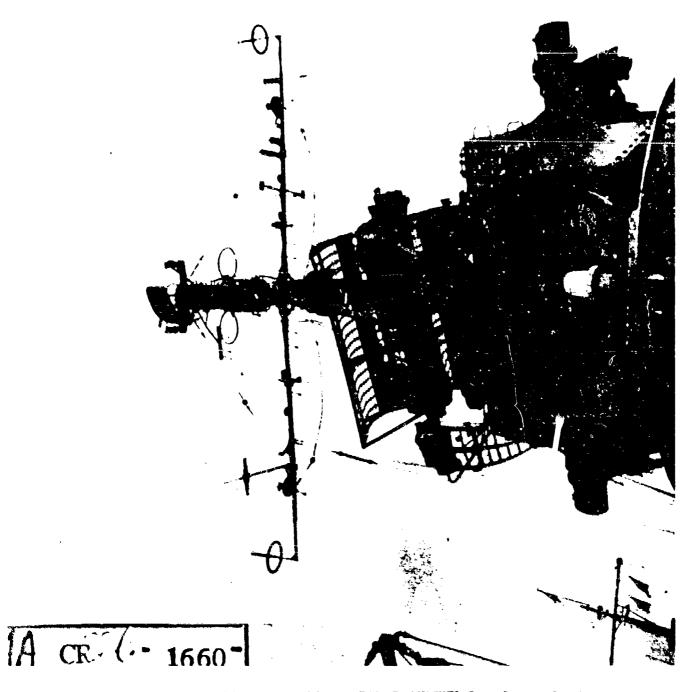
POST ABLE - COMMUNICATION ANTENNAS. The TBS antenna pedestal on starboard yardarm was bent forward about 90° by blast. No elements were damaged and antenna lead was intact. A bent whip antenna can also be seen on yardarm.

<u>82087</u>

U.S.S. HUGHES (DD-410)

Pare 129 of 274 nages

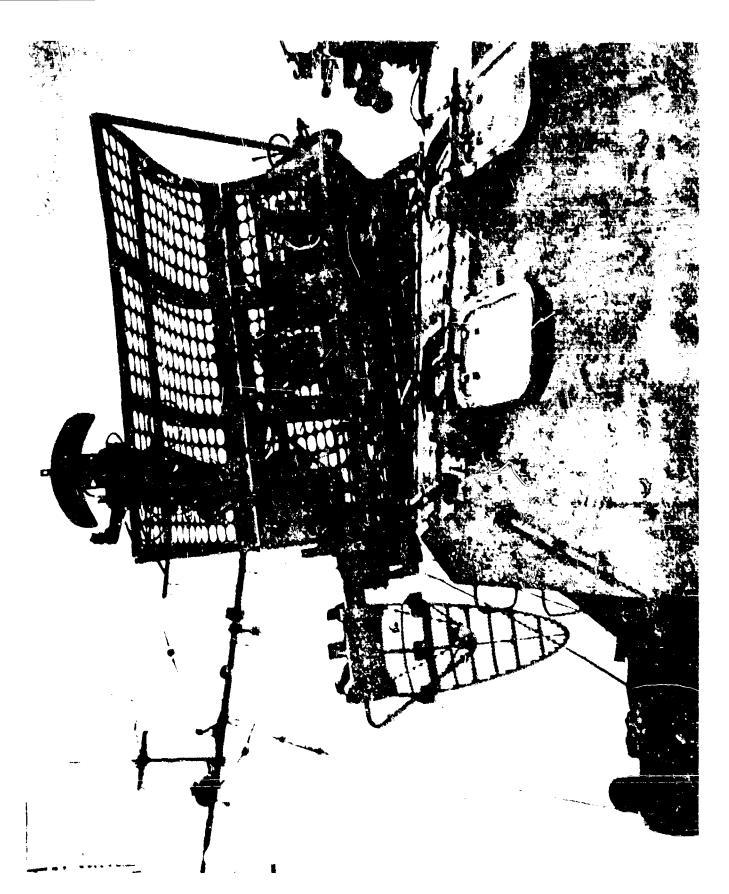




POST ABLE - MK 12 AND MK 22 RADAR ANTENNAS. Coneral view.

U.S.S. HUGHES (DD-410)

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POST ABLE - MK 12 AND MK 22 RADAR ANTENNA. Closeup view.

U.S.S. HUGHES (DD-410)

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POST ABLE - MK 4 ANTERNA MOUNT. Bottom of crosslevel mount (arrow) which is bent backwards, allowing bearings to fall out.

U.S.S. HUGHES (DD-410)

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POST ABLE - MK 4 ANTEN'A MOUNT. Close-up of bottom of cross level mount (A) bent, allowing bearings to fall out. (B)

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U.S.S. HUGHES (DD-410)

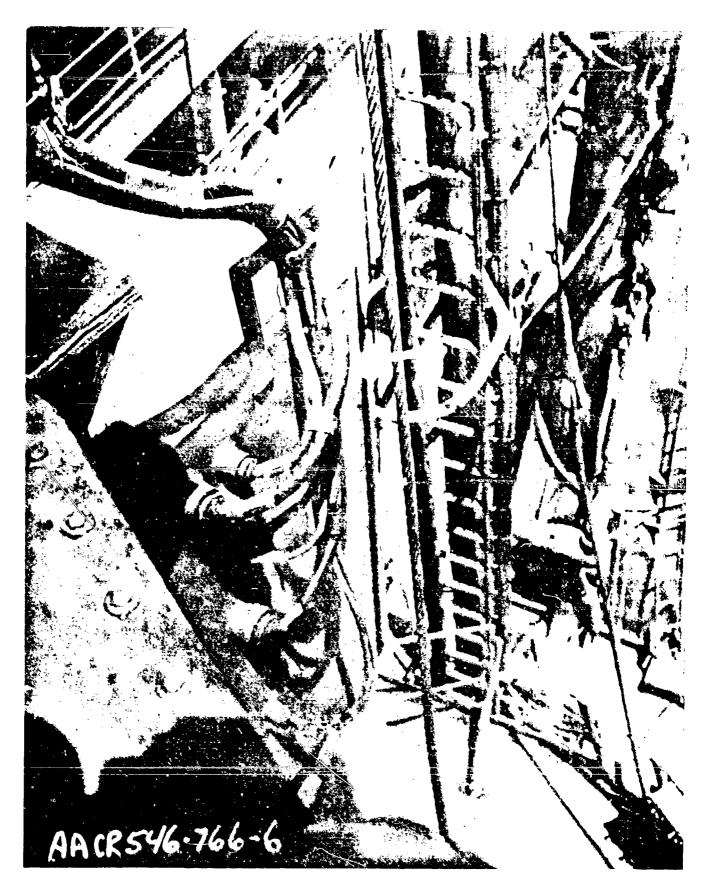
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POST ABLE - MK 4 AND MK 22 RADAR ANTENNAS. Position of MK 22 antenna (B) with respect to MK 4 antenna. Shaft connecting MK 22 to arm (C) was broken, allowing antenna to float freely.

U.S.S. HUGHES (DD-410)

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POST ABLE - MK 22 RADAR. Cables to transmitter and antenna. Note charring which was caused by heat from radiation on Test Able. Damage was only on surface and did not keep cables from operating. Rubber covered cables suffered the worse damage.

U.S.S. HUGHES (DD-410)

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TEST ABLE

. S.S. SKATE (SS-305)

Range: 500 yards

Bearing: 125°T

This submarine "fored very severe topside damage. Electronic equipment within the pressure hull suffered only minor shock
damage.

SECRET

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POST ABLE - PORT SIDE. Showing general broadside view.

U.S.S. SKATE (SS-305)

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POST ABLE - STERN VIEW. Showing general topside damage.

U.S.S. SKATE (SS-305)

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POST ABLE - TOPSIDE VIEW. General view of topside damage to periscope shears, SJ-1 antenna and SD antenna mast. The SD bowl insulator and antenna have been blown away.

U.S.S. SKATE (SS-305)

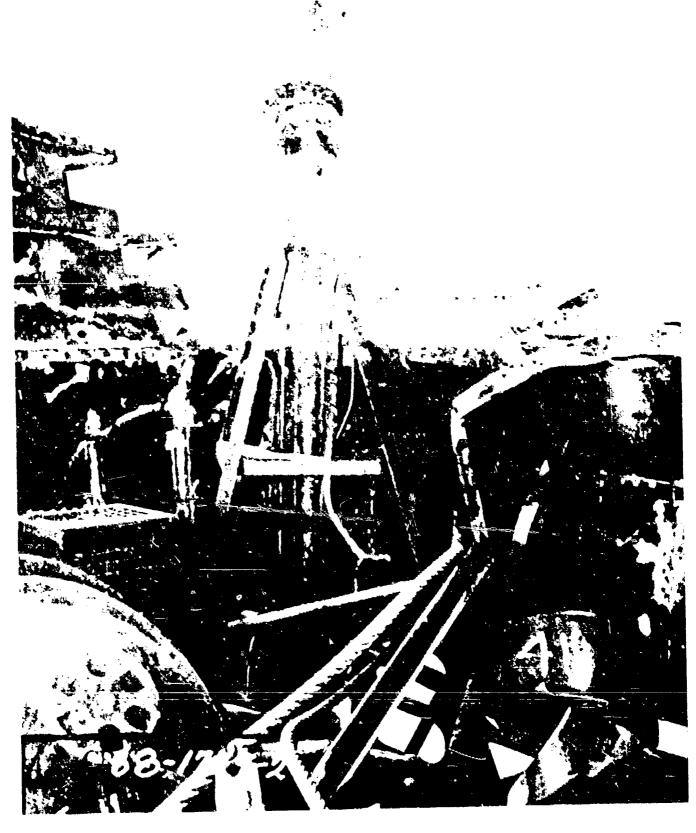
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POST ABLE - SJ RADAR ANTENNA. Close up view of the SJ antenna and reflector, showing how much it has been forced over.

U.S.S. SKATE (SS-305)

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POST ABLE - X-QLA SONAR HEAD. View looking forward from the conning tower.

U.S.S. SKATE (SS-805)

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POST ARLE - X-QLA SONAR HEAD. Close up view of the break in the pedestal and flange.

U.S.S. SKATE (SS-305)

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POST ABLE - X-QLA SONAR. Sine wave potentimeter drive gear of the X-QLA was thrown out of mesh.

U.S.S. SKATE (SS-305)

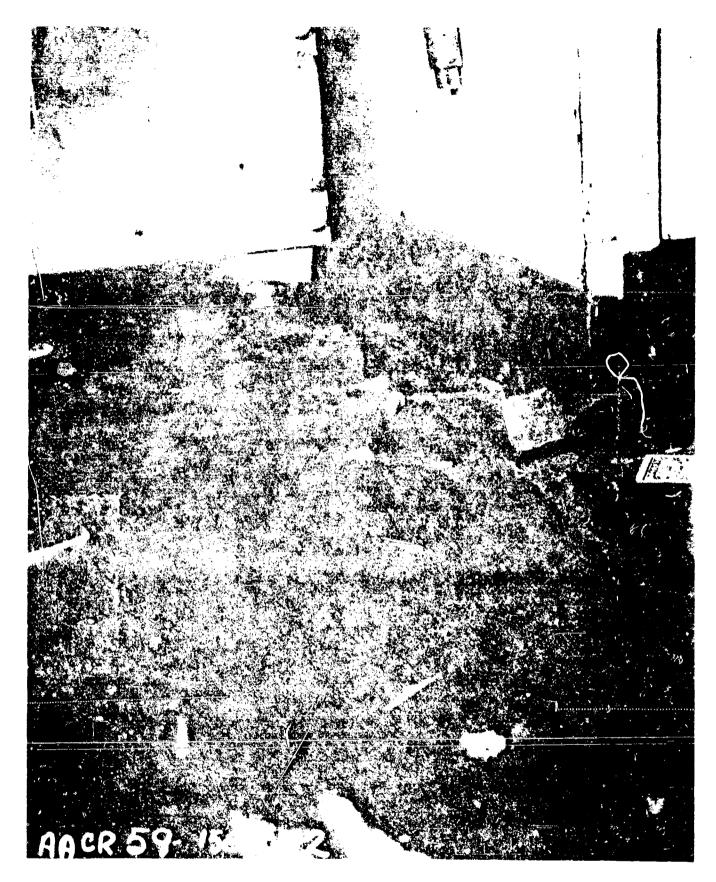
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POST ABLE - X-QLA STACK. Top shock mount on the X-QLA was broken free.

U.S.S. SKATE (SS-305)

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POST ABLE - X-QLA SOUND STACK. Lower shock mount was torn and damaged by the movement of the equipment.

U.S.S. SKATE (SS-305)

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POST ABLE - WCA SOUND STACK. QB head bearing repeater was jarred out of its frame because of a loose pin in the securing brace. Front panel of the TDM recorder dropped open, releasing the roll holding the recording paper. Damage was not serious and operation was found to be satisfactory.

SECRET

U.S.S. SKATE (SS-305)

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TEST ABLE

U.S.S. BANNER (APA-60)

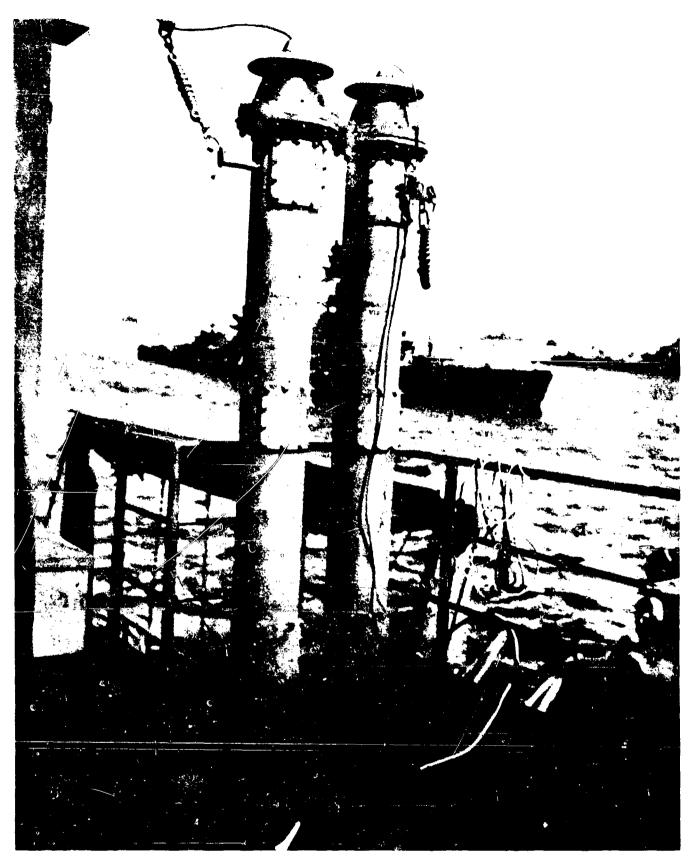
Range: 1300 yards

Bearing: 1150

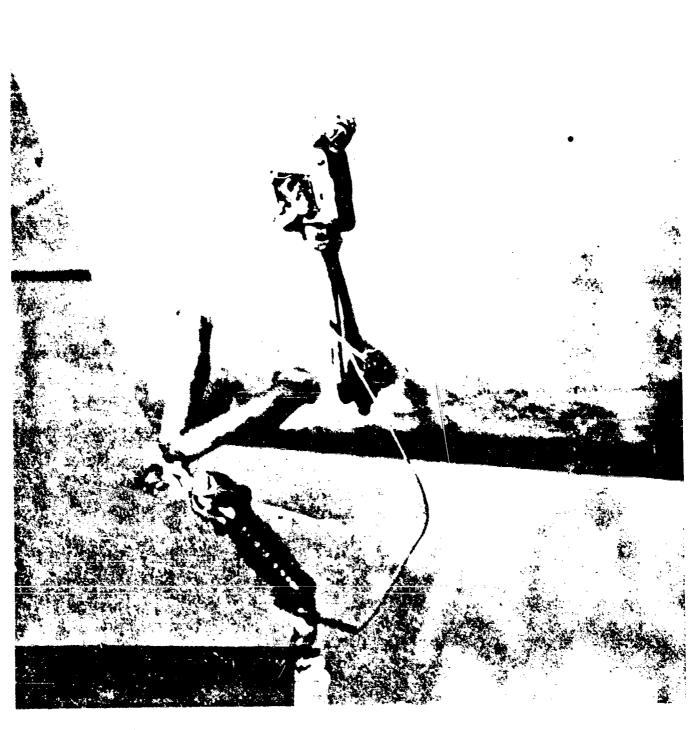
This ship suffered light damage. Pictures of damage to the ABK mountings and to antenna and antenna trunks are good examples of those types of damage.

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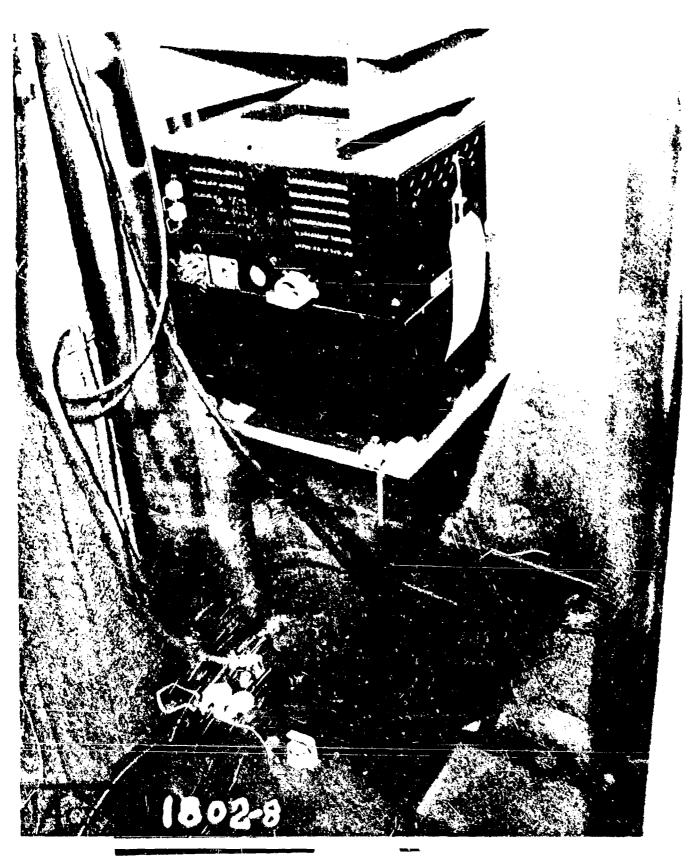
SECRET



POST ABLE - ANTENNA TRUNKS. Outboard antenna blown down.



POST ABLE - D/F SENSE ANTENNA. Broken sense antenna junction box.



POST ABLE - ABK MOUNTING. Example of ABK mounting failure. The upper unit lies on deck where it fell after breaking plugs on cables at control unit.

U.S.S. BANKER (APA-60)

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TEST ABLE

U.S.S. BRULE (APA_66)

Range: 100 yards

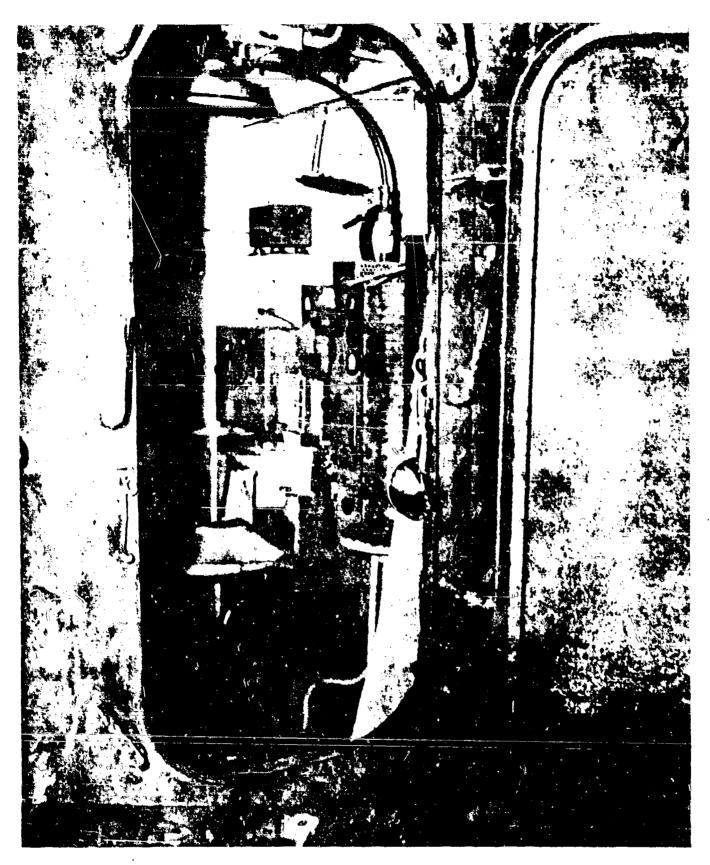
Bearing: 070°

This ship received heavy damage in Test ABLE.

Of the numerous photographs taken of the resulting damage, the most interesting are those showing the SC radar transmitter, which was damaged by direct exposure to the explosion when compartment door was purposely left open. Typical cases of ABK mounting failure and antenna and antenna trunk insulator breakage are also shown.

SECRET

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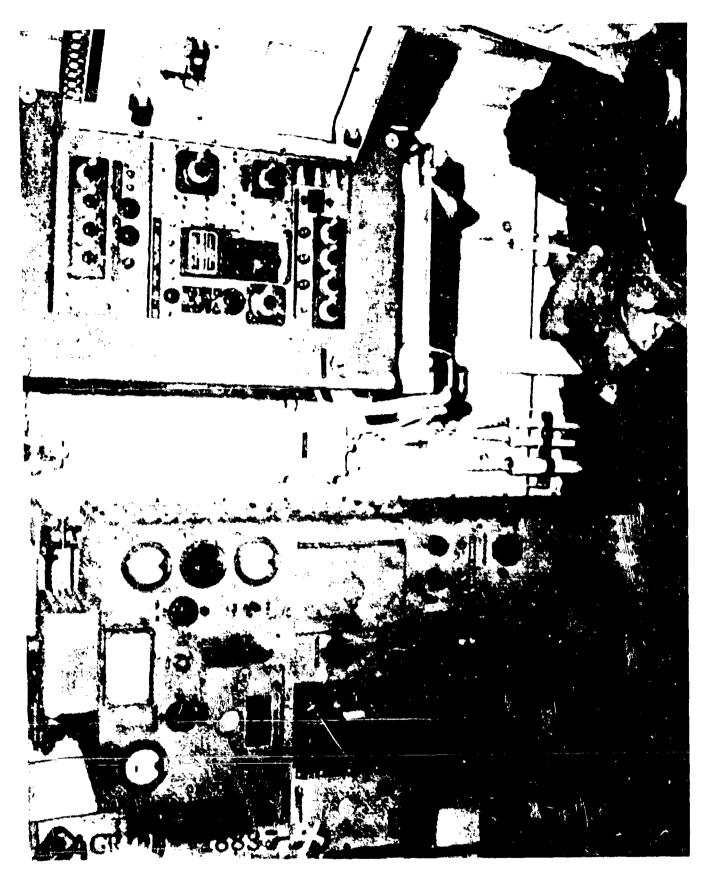
<u>POST ABLE - SC-4 TRANSMITTER</u>. Exposed to direct radiation from explosion in direction of photographs, as hatch was purposely left open.

U.S.S. BRULE (APA-66)

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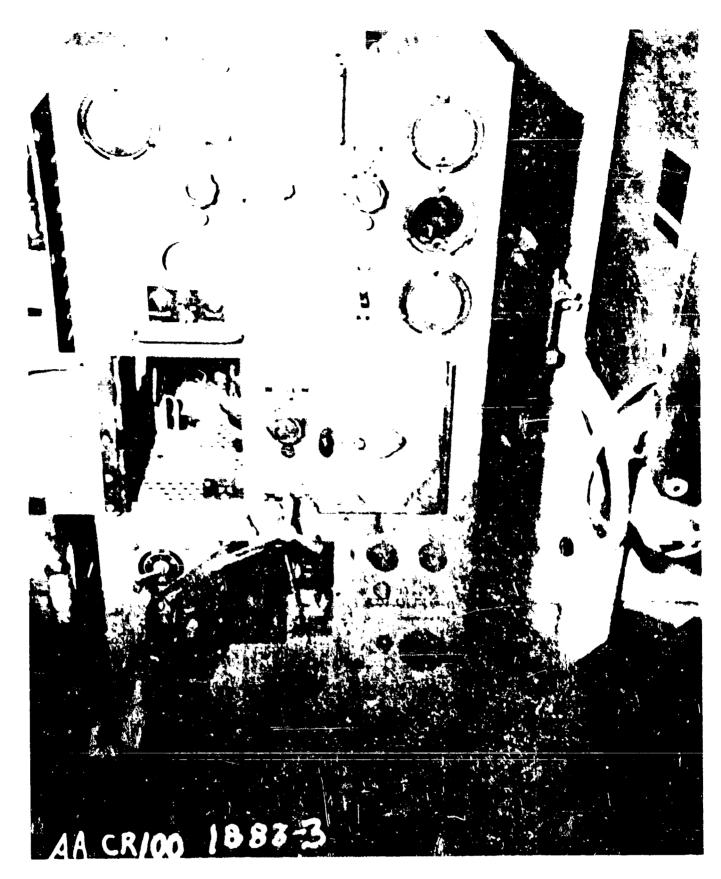
POST ABLE - SC-4 TRANSMITTER. View showing the side panel which was shaken loose. Several of the knurled screws which can be seen in the picture were evidently not properly secured. This unit has been returned to NRL for further study.



POST ABLE - SC-4 TRANSMITTER. Front view of the exposed transmitter showing damage to meters, knobs and access doors.

U.S.S. BRULE (APA-66)

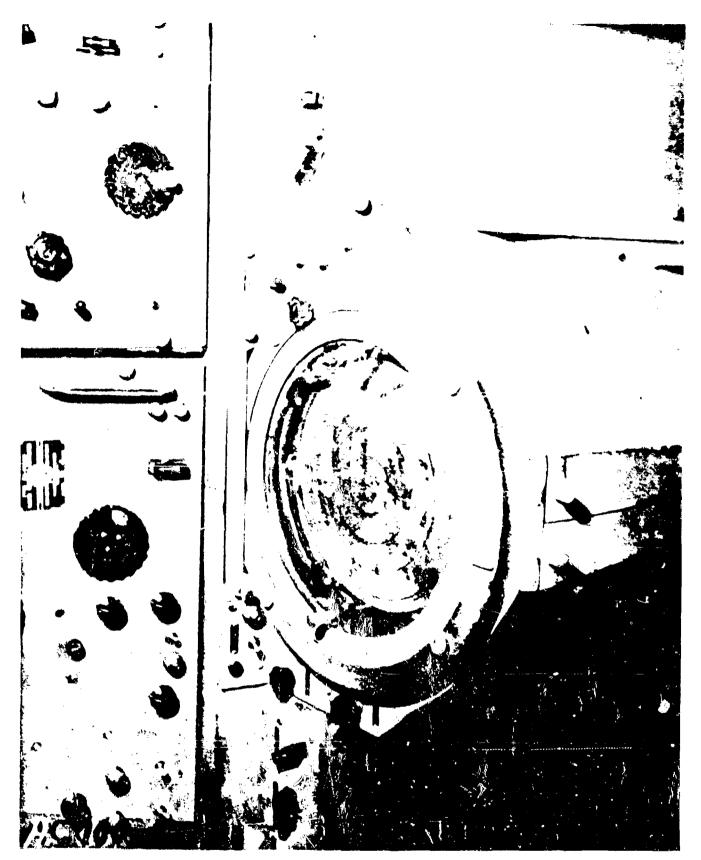
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POST ABLE - SC-4 TRANSMITTER. Close-up view of the front of the SC-4 transmitter exposed to radiation. Plastic pilot light covers and knobs were seared, access doors bent, and meters demaged. The 327-A tubes were broken.

U.S.S. BRULE (AFA-66)

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POST ABLE - SC-4 P.P.I. One of several cases where an SC PPI tube was broken at the neck because positioning screws were not properly tightened. The inrush of air through the neck of the tube blew the fluorescent material off the screen.

U.S.S. BRULE (APA-66)

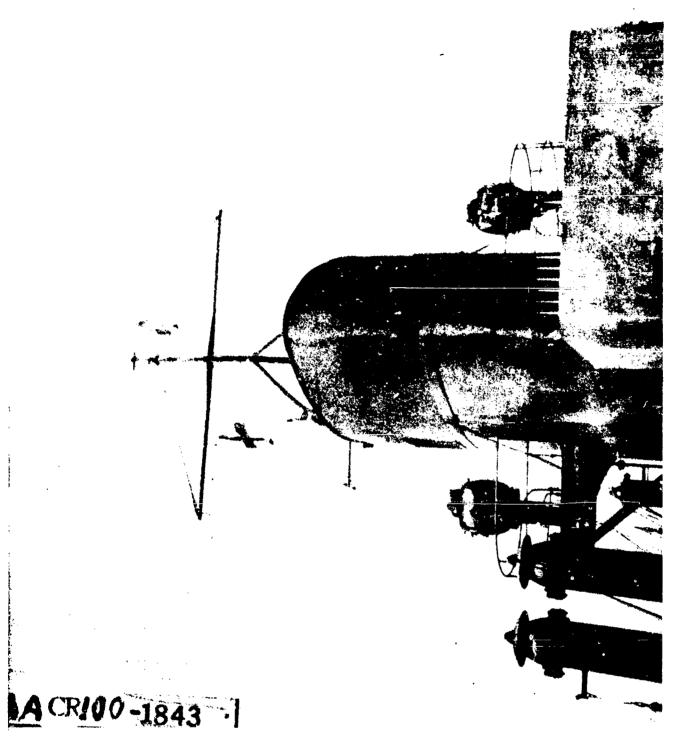
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POST ABLE - SC-4 DRIVER UNIT. Unit was pulled out to show the broken lower standoff insulator (arrow) on the meter resistor which was broken by shock. Loss of resistor does not stop use of equipment and plugsing it back into upper clip restored use of the meters.

U.S.S. BRULE (APA-66)

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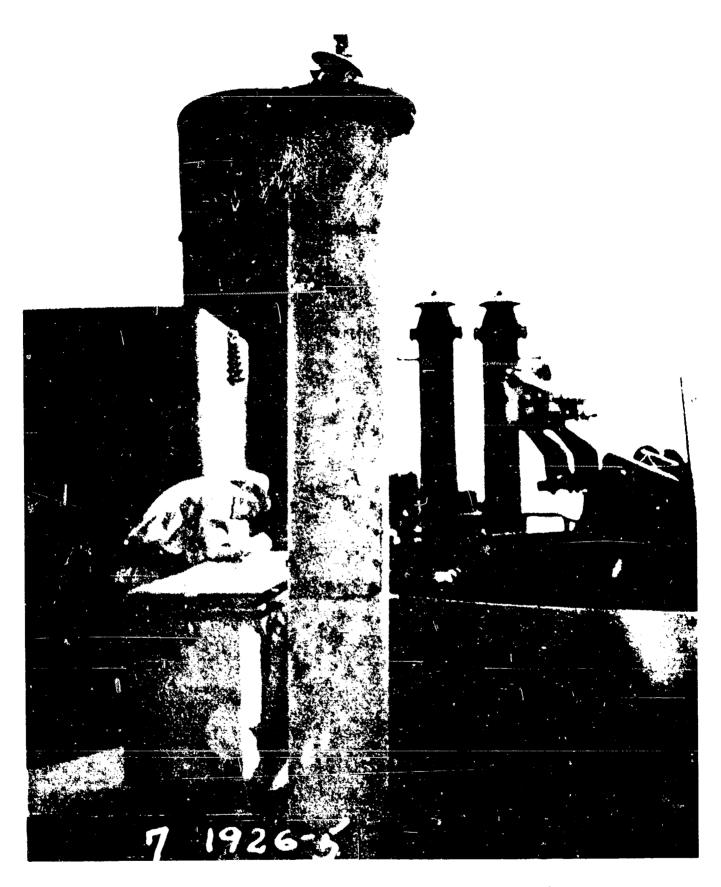


POST ABLE - FOREMAST AND ANTENNA TRUNKS. Radiator of TBS antenna at top of foremast was bent. In left foreground are two radio antenna trunks from which antennas have been torn. Note arrows indicating broken strain insulators.

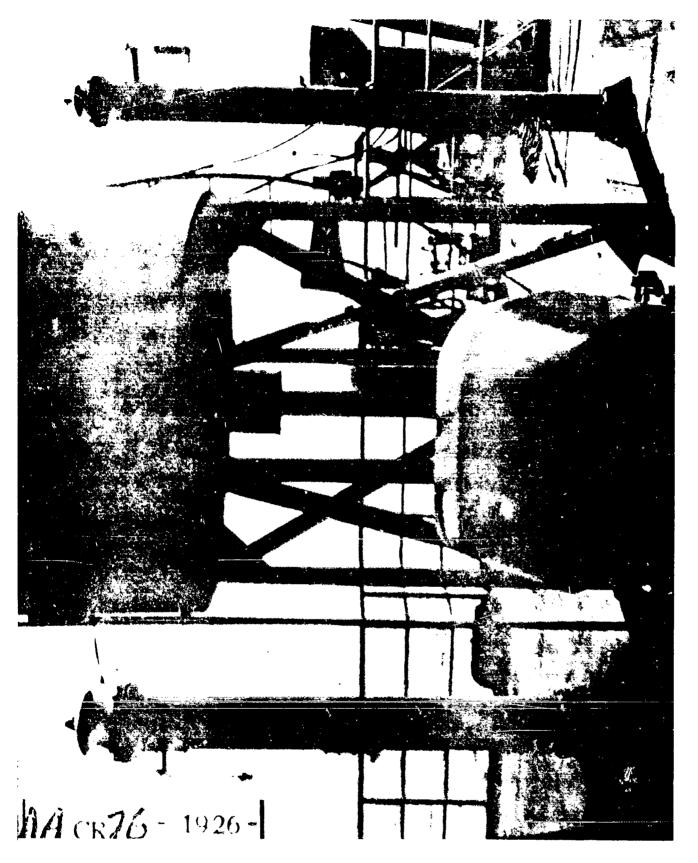
SECRET

U.S.S. BRULE (APA-66)

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POST ABLE - ANTENNA TRUNK. Entering insulator was damaged and strain insulator broken by the blast.



POST ABLE - EMERGENCY RADIO TRUNKS. Typical case of antenna damage, with broken strain insulator and wires.

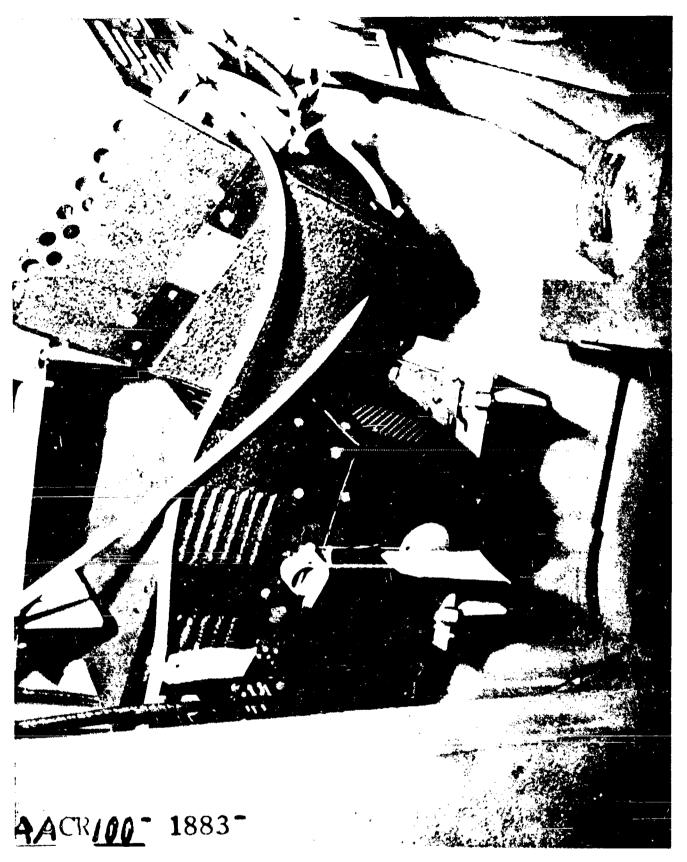


POST ABLE - STRAIN INSULATOR. insulators.

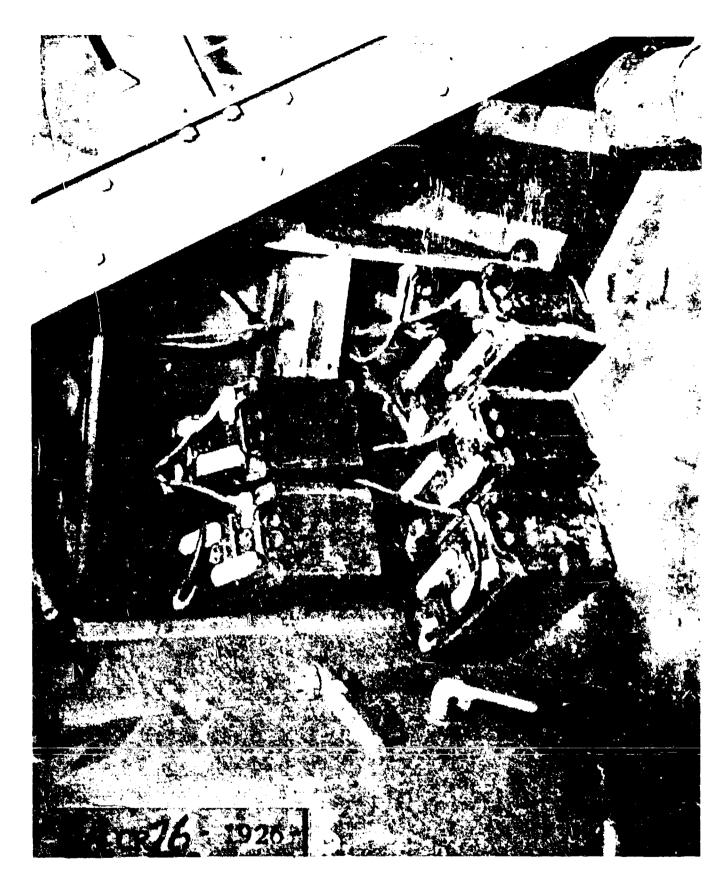
One of many cases of broken strain

U.S.S. BRULE (APA-66)

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<u>POST ABLE - ABK UNITS</u>. Both ABK-3 units were completely shaken off their mountings by the blast shock but were otherwise undamaged.

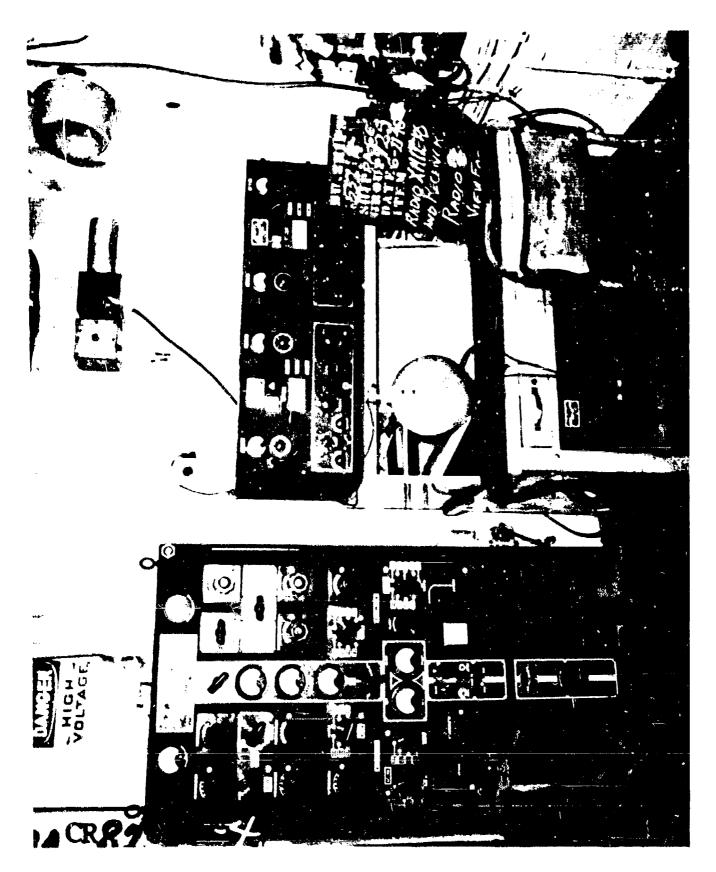


<u>POST ABLE - BATTERIES</u>. Batteries for TCS power supply were knocked out of their locker due to being improperly secured. Their operation was unimpaired.

SECPET

U.S.S. BRULE (APA-66)

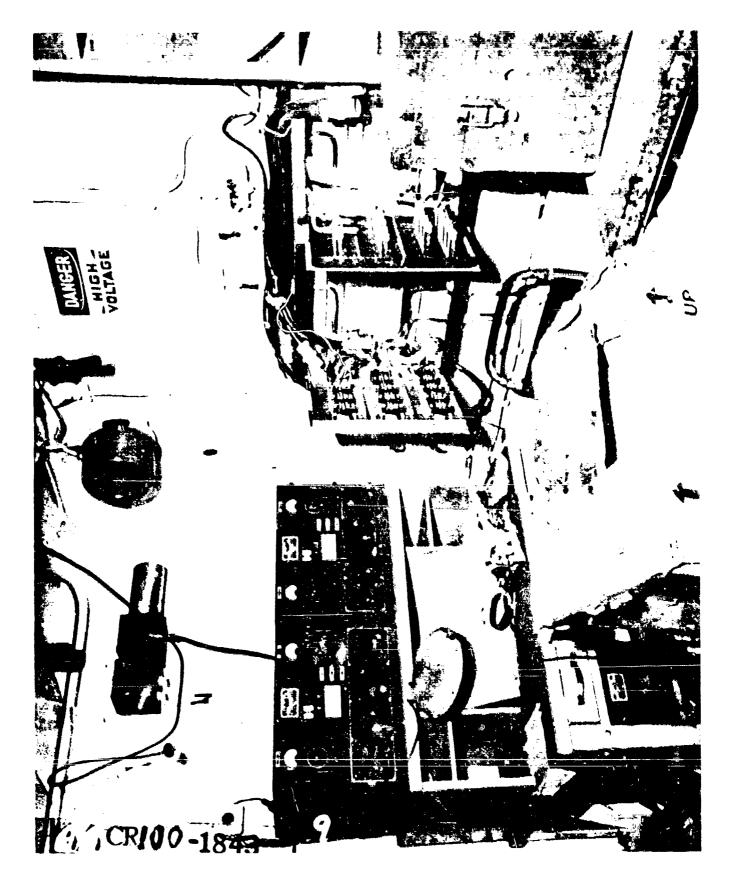
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PRE ABLE - RADIO III. Shows TDE, RAK/RAL and patch panel.

U.S.S. BRULE (APA-66)

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POST ABLE - RADIO III. The patch panel was opened by shock but caused no damage.

U.S.S. BRULE (APA-66)

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TEST ABLE

U.S.S. CARTERET (APAL70)

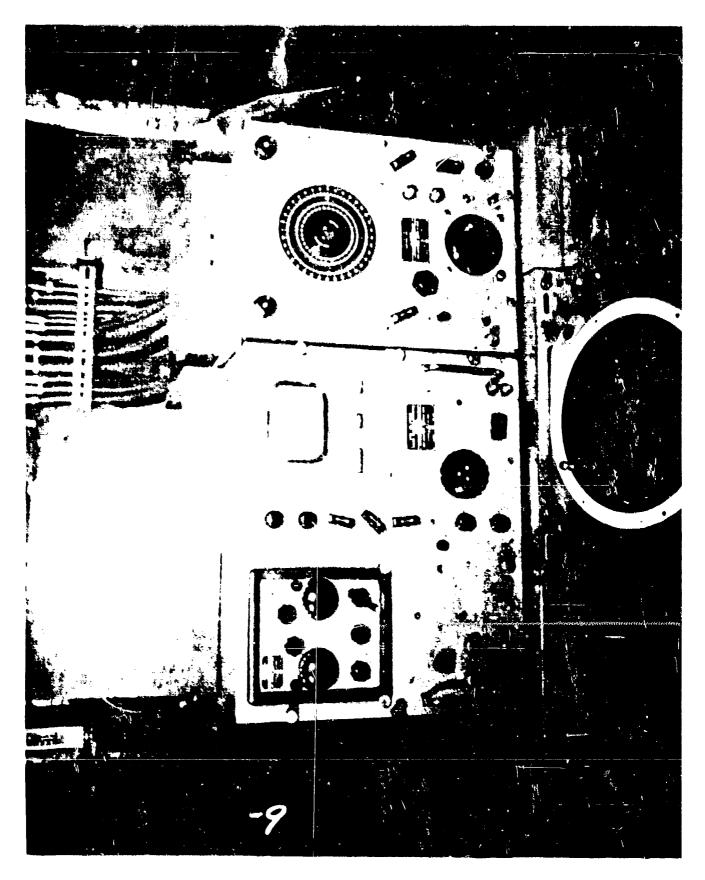
Range: 1600 yards

Bearing: 080°

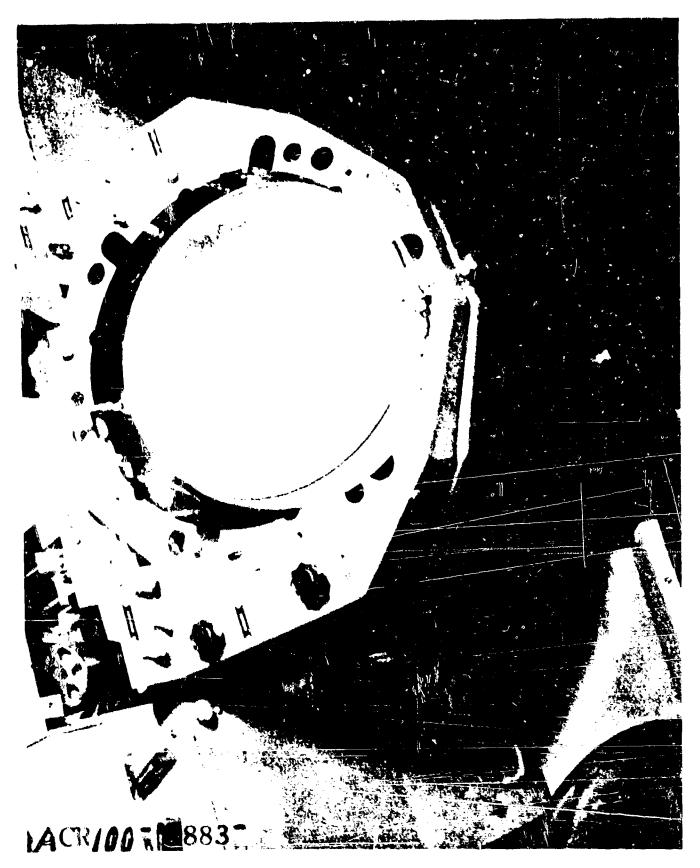
Very light damage was suffered by electronic equipment aboard this ship. The PPI tube of the SC radar equipment has been broken at the neck and the inrush of air has blown the fluorescent material off the screen.

SECRET

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PRE-ABLE SC-4 INDICATOR. Front view.



POST ARLE SG-4 INDICATOR. PPI Tube was loosely secured, allowing enough movement of neck of tube to shatter it under shock.

U.S.S. CARTERET (APA-70) 4569

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TEST ABLE

U.S.S. CRITTENDEN (APA_77)

Range: 600 yards

Bearing: 275°

This ship suffered very heavy damage because of its proximity to the explosion. A good conception of its overall damage can be obtained from the photographs.

Particularly interesting pictures are the ones showing loss of radar antennas and waveguide damage. Also, it is interesting to note how the fathometer was damaged by the dishing in of the forward bulkhead of the wheelhouse.



<u>POST ABLE - FOREMAST</u>. Top section blown over. Reflector was broken off of SG-1 antenna and waveguide collapsed.

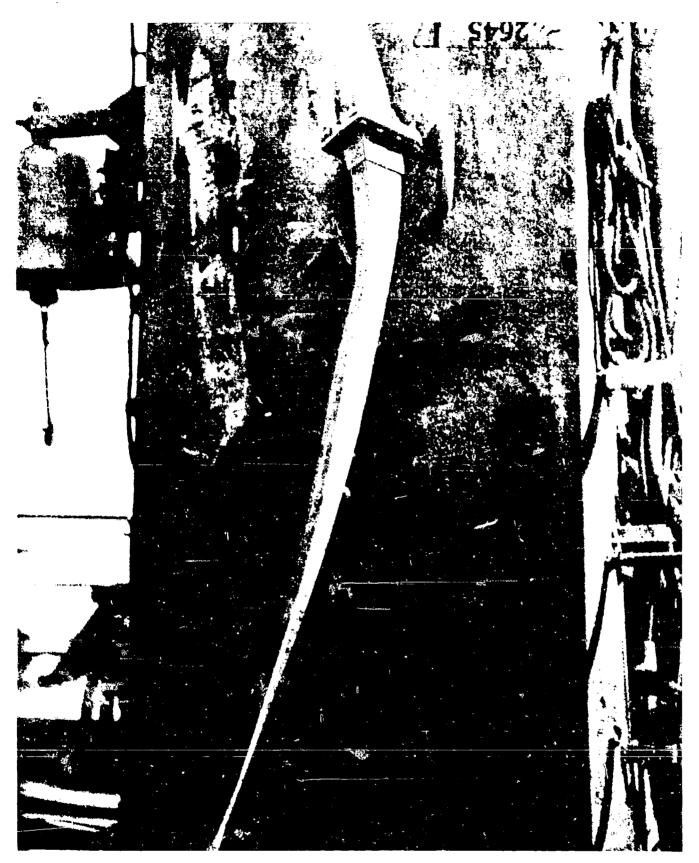
U.S.S. CRITTENDEN (APA77)
Page 170 of 274 pages 4569.



POST ABLE - FOREMAST. Top section blown over. Note condition of waveguide at center of picture, where flange has separated from guide at soldered joint. Waveguide was flattened and next line twisted for full length of exposed run.

U.S.S. CRITTENDEN (APA-77)

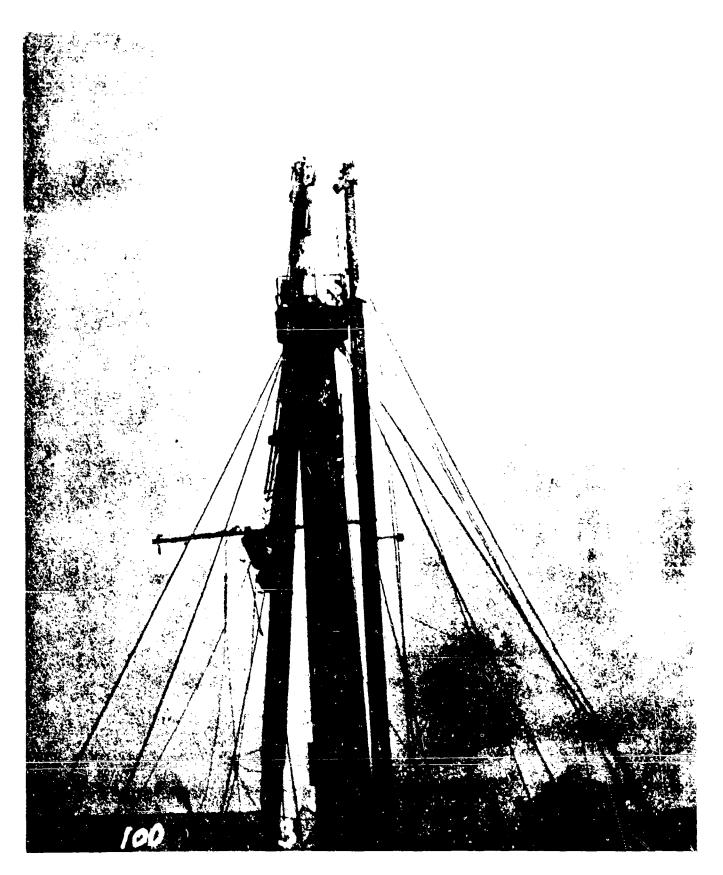
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POST ABLE - FOREMAST. Close-up of flattened and twisted SG wave-guide.

U.S.S. CRITTENDEN (APA77)

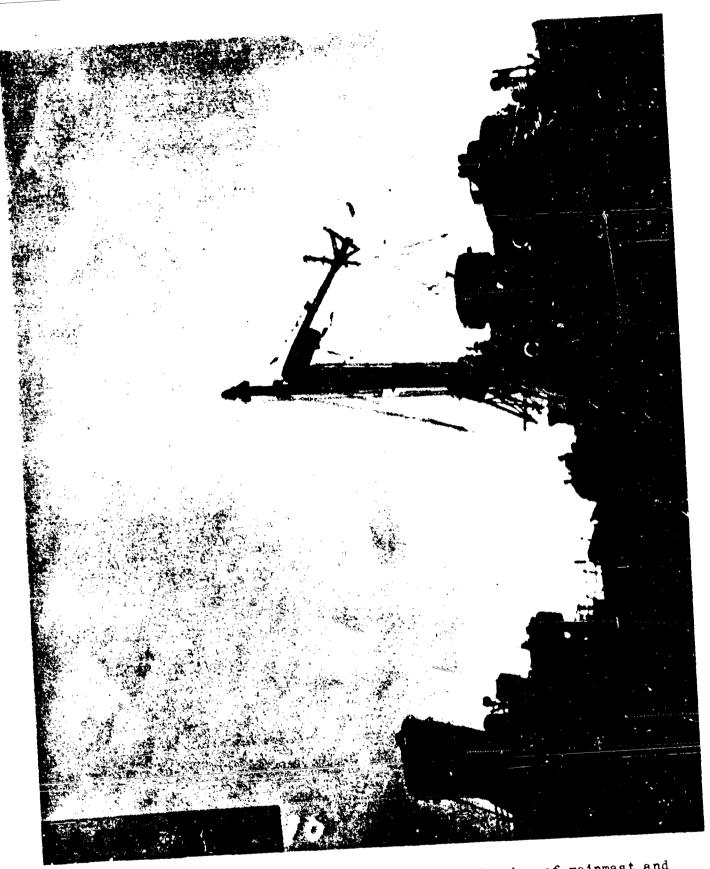
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POST ABLE - MAINMAST. Upper section looking aft.

U.S.S. CRITTENDEN (APA77)

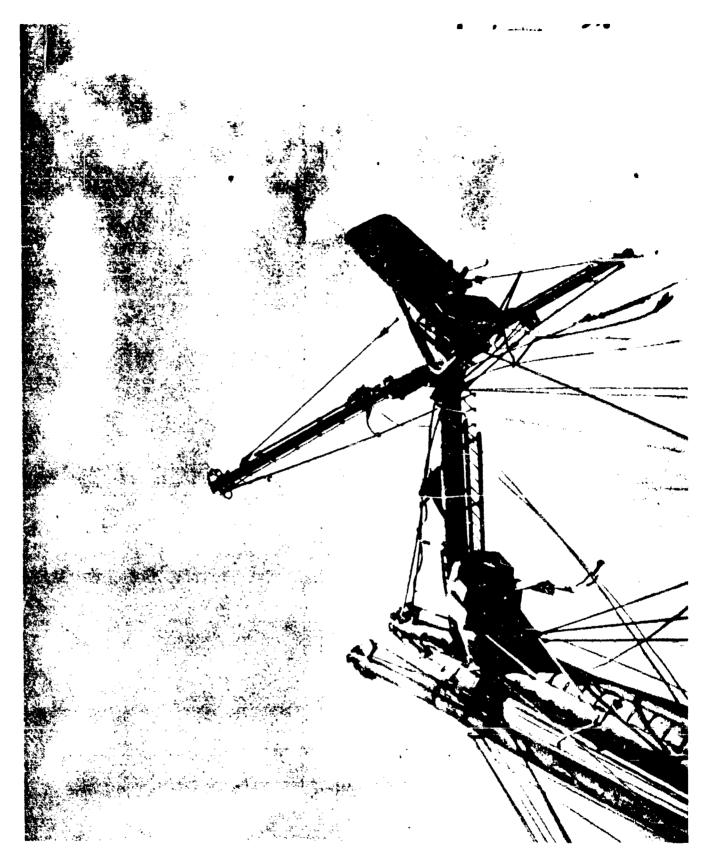
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FOST ABLE - MAIN! AST. General port side view of mainmast and after structure.

U.S.S. CRITTENDEN (APA77)

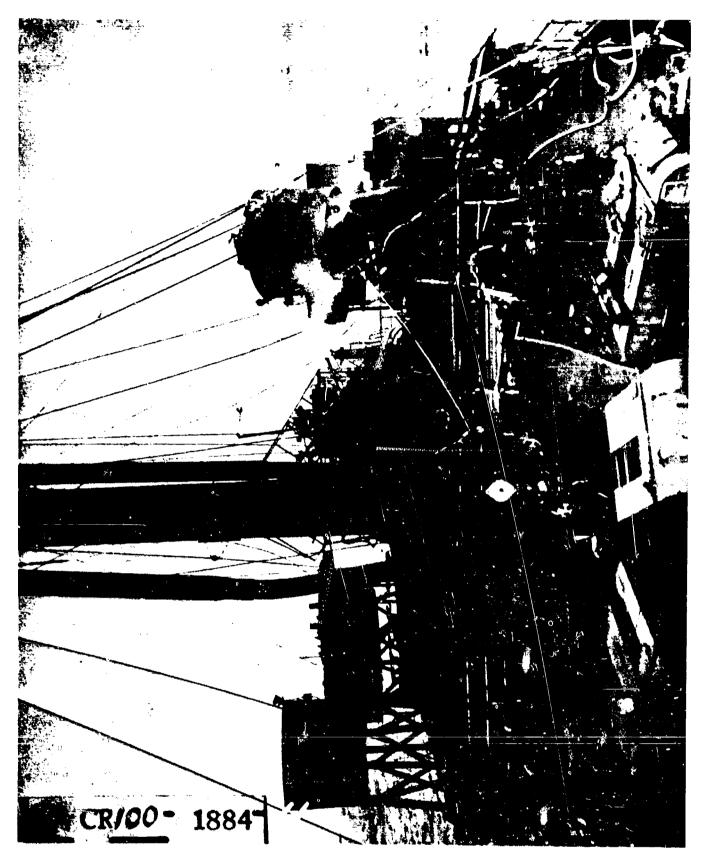
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<u>POST ABLE - MAINMAST</u>. Top section blown over. Base ring of SC-4 pedestal still bolted to foundation, with a few fragments of pedestal remaining.

U.S.S. GRITTENDEN (AFA77)

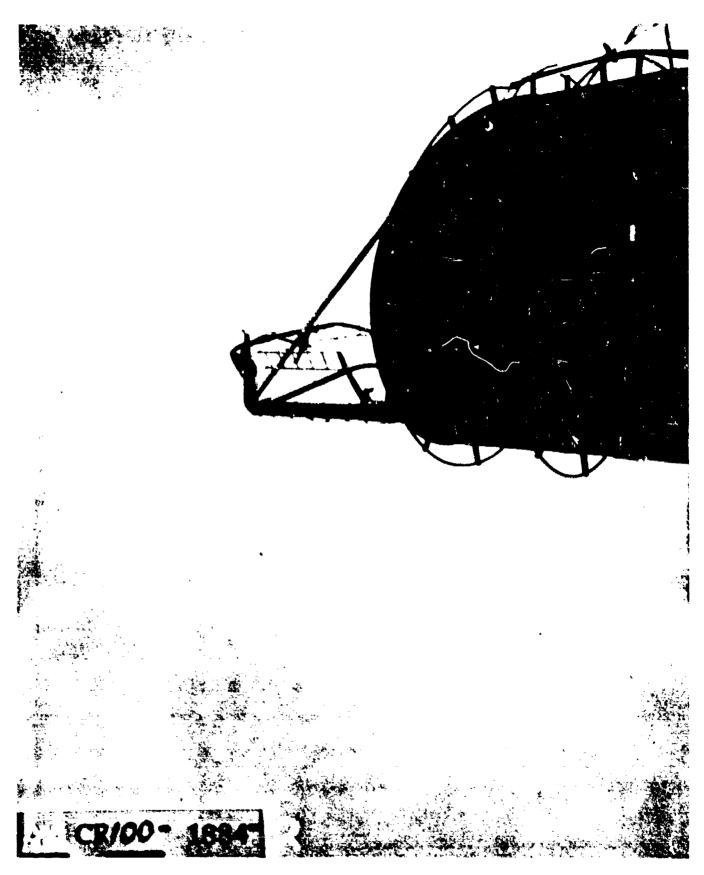
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<u>POST ABLE - MAINMAST</u>. View of lower section looking aft shows boom, shattered SC-4 antenna, and port 40-mm director tub bent back.

U.S.S. CRITTENDEN (APA77)

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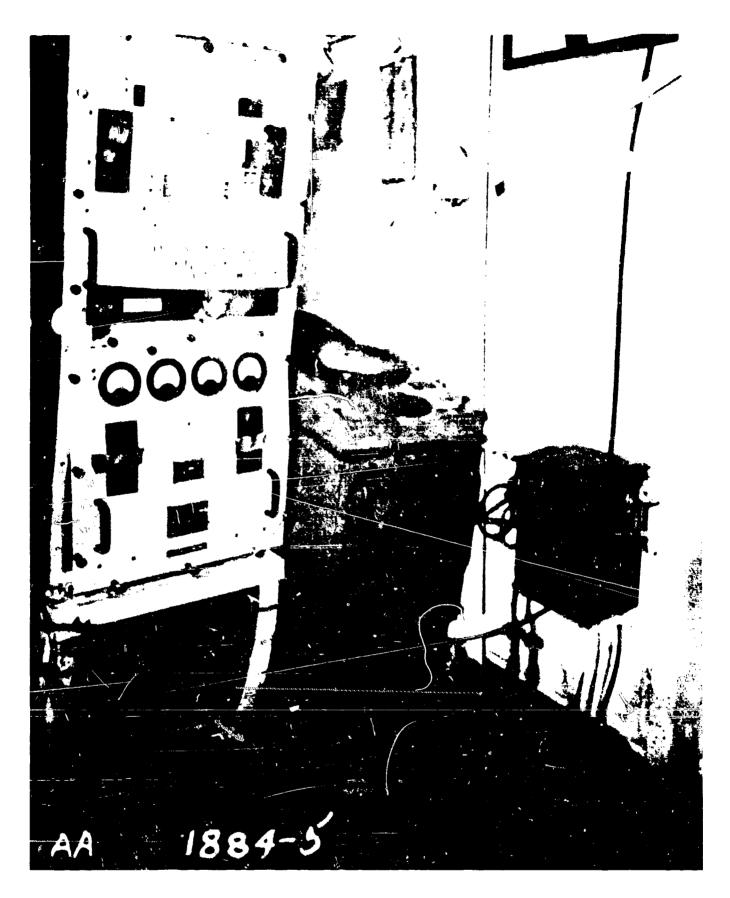
<u>POST ABLE - ANTENNAS</u>. View of damaged stack mounted antennas including TBS antenna.

U.S.S. GRITTEMDEN (APA77)

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PRE ABLE - PILOTHOUSE. Front view of VD-2 remote PPI.



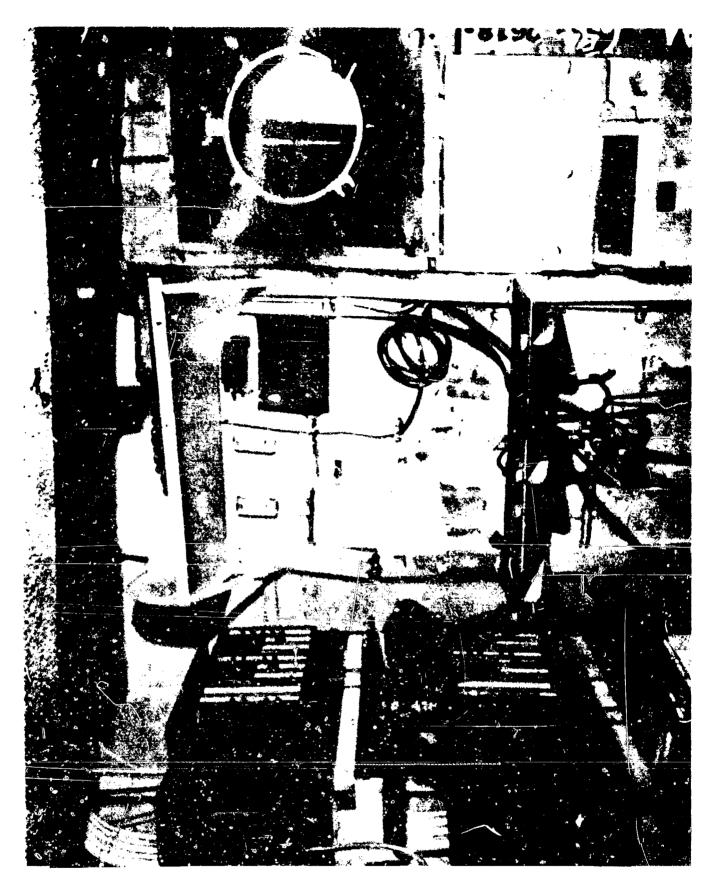
POST ABLE - PILOTHO'SE. Front view of NMC and VD-2. The welds narted on the VD-2 foundation, and the selector switch was torn from its mount. However, the VD-2 was still operable. The NMC was warped and had internal damage.

U.S.S. CRITTENDEN (APA77)

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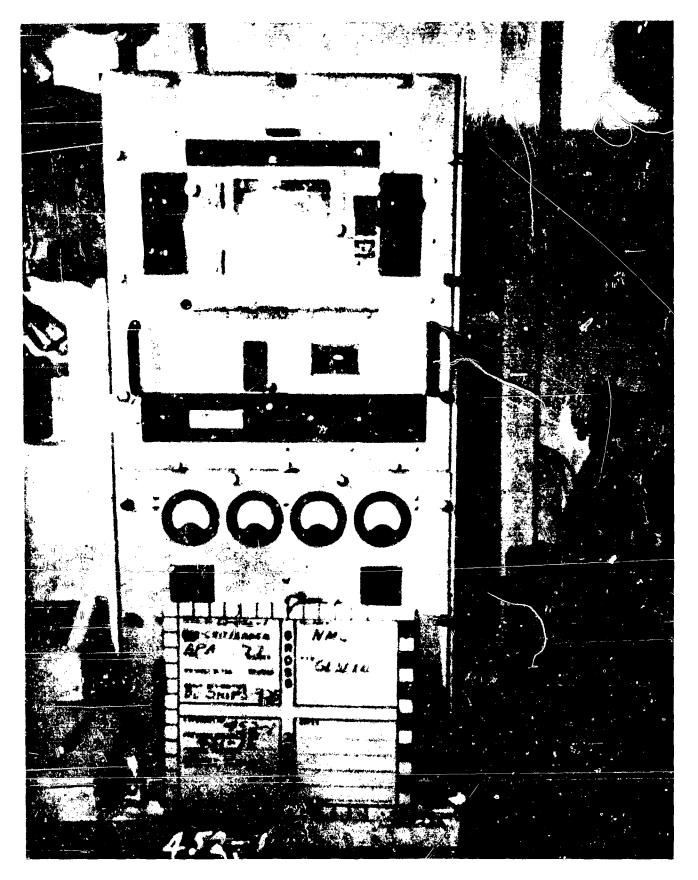
PRE ABLE - PILOT HOUSE. View of forward port corner.



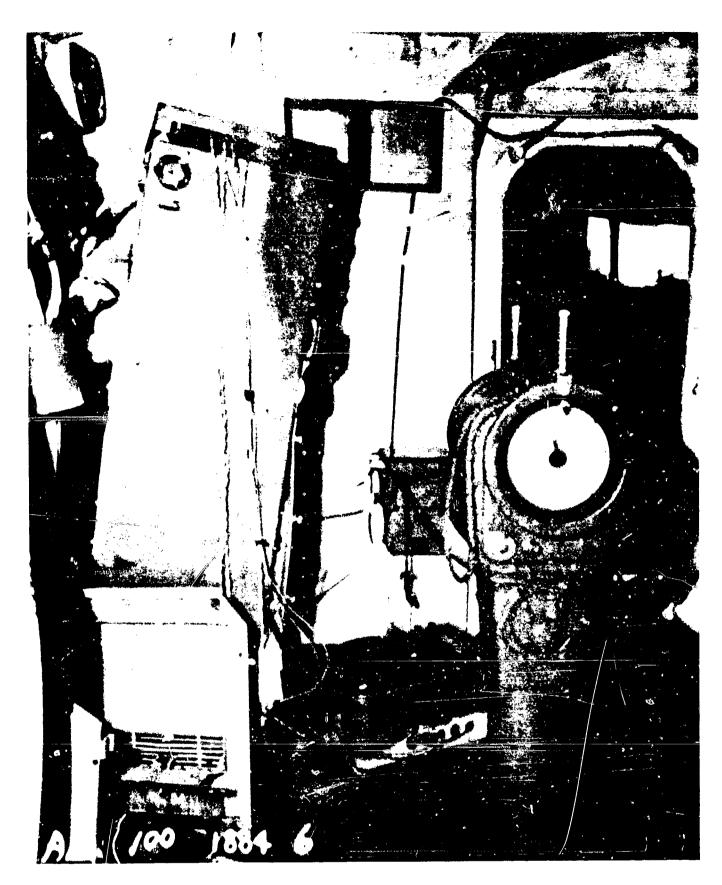
POST ABLE - PILOTHOUSE. View of forward nort corner. Shock mount bolts were sheared off.

U.S.S. CRITTENDEN (APA77)

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PRE ABLE - NMC FATHOMETER. Front view.



POST ABLE - NMC FATHOMETER. Side view of NMC. Bulkhead to left (forward bulkhead of milot house) was mushed in, timming NMC aft and warming its foundation and main frame. Additional fathometer on deck was mlaced there by instrumentation crew for recording work during test.

U.S.S. CRITTEDEN (AFA77)

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<u>POST ABLE - PILOTHOUSE</u>. View of forward nort corner. Equipment knocked off mounts.

-U.S.S. CRITTENDEN (APA77)

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TEST ABLE

U.S.S. DAWSON (APA_79)

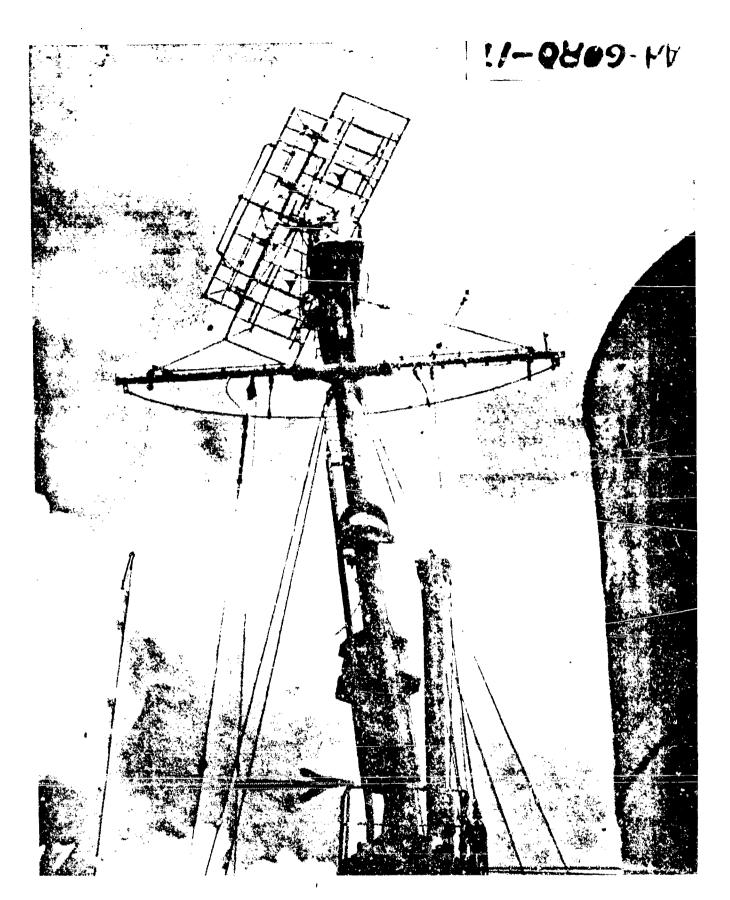
Range: 900 yards

Bearing: 2550

This ship received heavy damage from the explosion. The photographs of the bent mainmast and damaged SC radar antenna and of the broken SG reflector show the most interesting damage aboard this ship.

SECRET

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PCST ABLE - SC ANTENNA. Mainmast was bent, (see arrow) and SC antenna was tilted by blast.

U.S.S. DAWSON (APA-79)

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POST ABLE - SG ANTENNA. SG antenna reflector broken by blast.

U.S.S. DANSON (APA-79)

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TEST BAKER

U.S.S. NEW YORK (BB34)

Range: 900 yards

Bearing: 1150

The damage to this ship was light. The MK 3 antenna received the only serious antenna damage from the BAKER explosion when it broke away from its mounting.

SECRET

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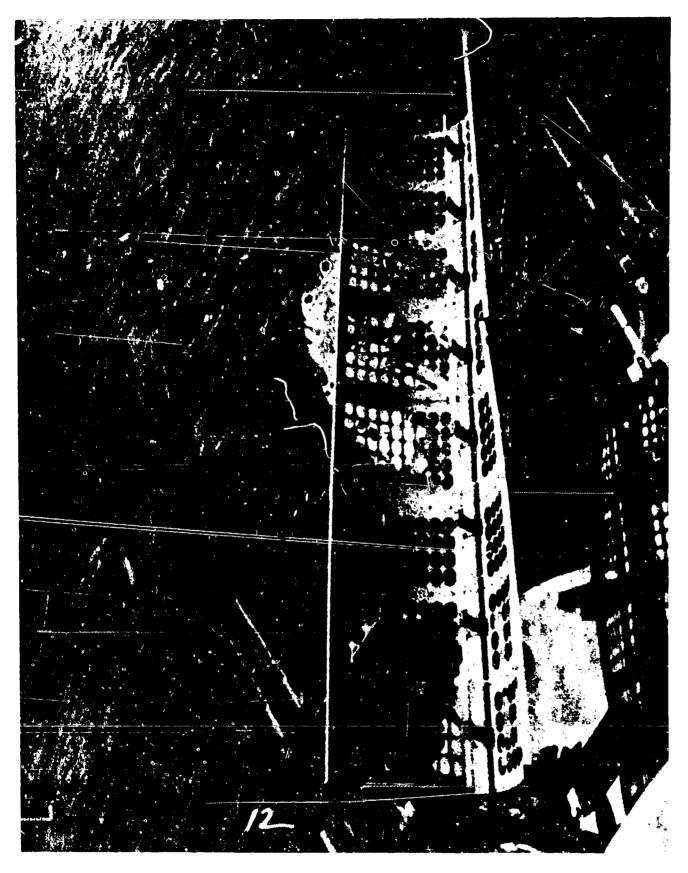


PRE BAKER _ MK 3 RADAR ANTENNA. Main bettery director forward. This antenna was undamaged during test Able.

SHURET

U.S.S. NEW YORK (BB 34)

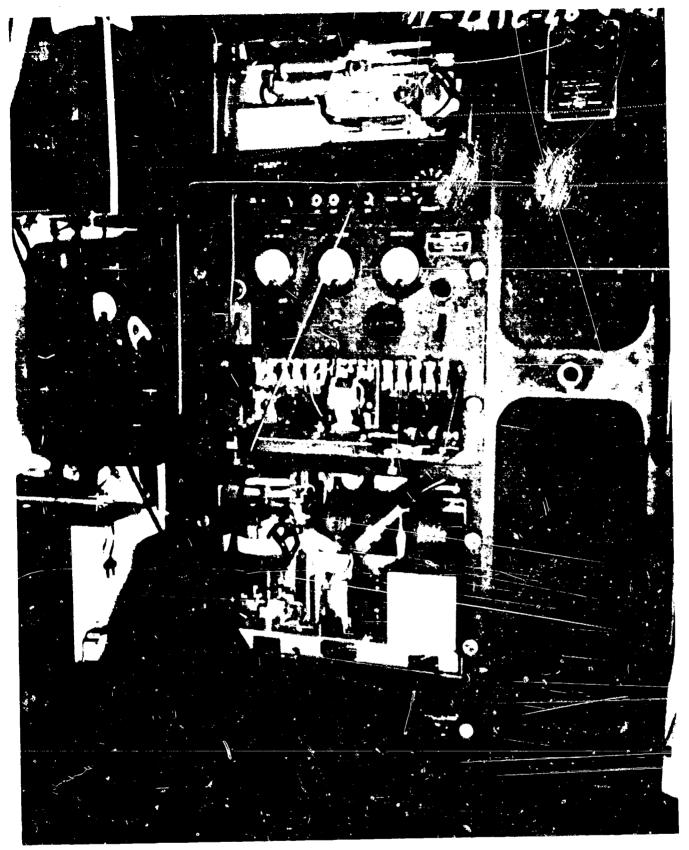
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PUST BAKER - MK 3 RADAR ANTENNA. Antenna was apparently intact except for damage caused by fall.



POST BAKER - MK 3 RADAR ANTENNA. Antenna pedestal in foreground with the antenna which was blown off lying in the 40 MM gun mount in the background.



POST BAKER - MK 3 RADAR MAINTRAME. MK 3 Mod 2 main battery forward fire control radar. Regulated nower sumply "A" was broken loose from its mounts. Keyer tube located behind "B" was broken.

TEST BAKER

U.S.S. NEVADA (B336)

Range: 1000 yards

Bearing: 0050

The damage to this ship was moderate in Toot BAKER. Only two photos are included, but they cover equipments which were most severely damaged. Damage was due to shock and mainly to fire control radar as shown.

SECRET

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POST BAKER - MK 12 MCD 1 RECEIVER. Damage to receiver in secondary battery director att.

U.S.S. NEVADA (FB 36)

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FOST BAKER - MK PD MoD & MAINSPORE. In after secondary betterge director modulator "A" and high voltage rectifier "P" were knocked from mounts, damaging these units as well as other components nearby.

TEST BAKER

U.S.S. FENNSYLVANIA (B338)

Range: 1200 yards

Bearing: 1750

This ship sustained moderate damage in Test BAKER. It is possible that the weight of felling water may have caused the failure of the MK 12 antenna mounts located on top of the MK 37 Secondary Battery Director as shown on page 197. Other damage probably resulted from shock.

SECKET

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FOST BAKER _ MK 12 RADAR ANTENNA MOUNT. Cross level gear assembly of MK 12 Mod 1 radar on port side MK 37 director. The construction is weak since the two housings "A" and "B" are mounted so that they are easily spread apart, allowing the antenna trunnion to fall out. The force of the blast, or the falling water, was sufficient to do this on several antennas of this type.

SECRET

U.S.S. PENNISYLVANIA (BB 38)

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POST BAKEF - ME 12 RADAR ANTENIA MOUNT. Sterboard antenna mount crosslevel assemble. Note piece broken cut "A", and crac! "B".

SECHLT

U.S.S. PENNSYLVANIA (BB-38)

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POST EARLE ME 12 RADER ANTENNA MOUNT. Bracket "B" was bent back, allowing antenna trunnion to fall out. Antenna fell forward so that it was pointing into water.

SECRUT

U.S.S. PERRISYLVANIA (BB 38)

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1.569

TEST BAKER

U.S.S. PENSACOLA (CA-24)

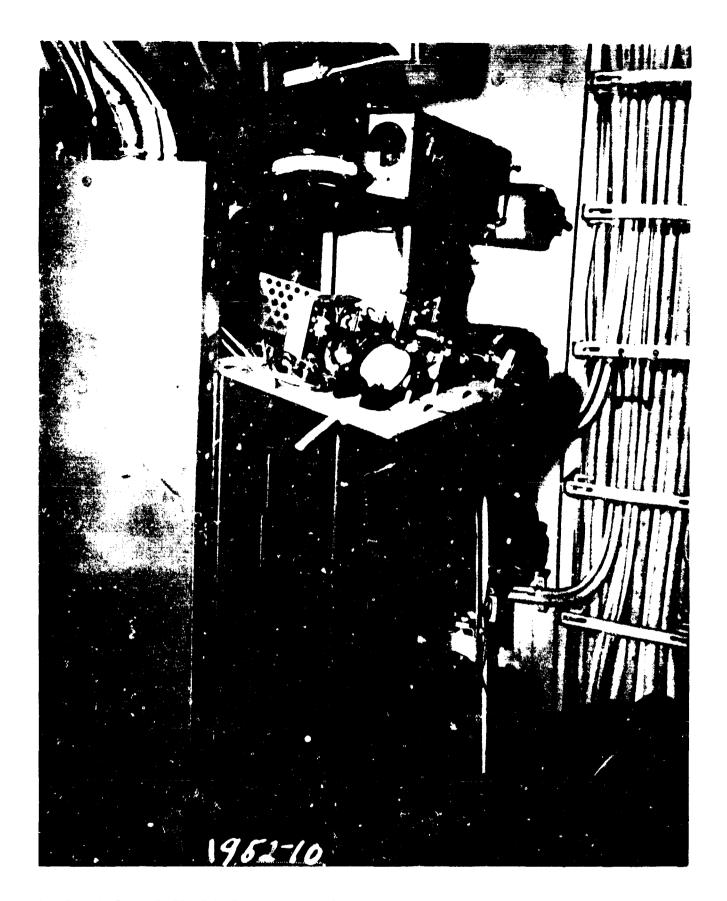
Range: 700 yarde

Bearing: 270°

Heavy damage was sustained by this ship, most of which was caused by shock. Numerous shockmount failures were encountered. These photographs give good coverage of representative types of damage found after Test BAKER.

SECRET

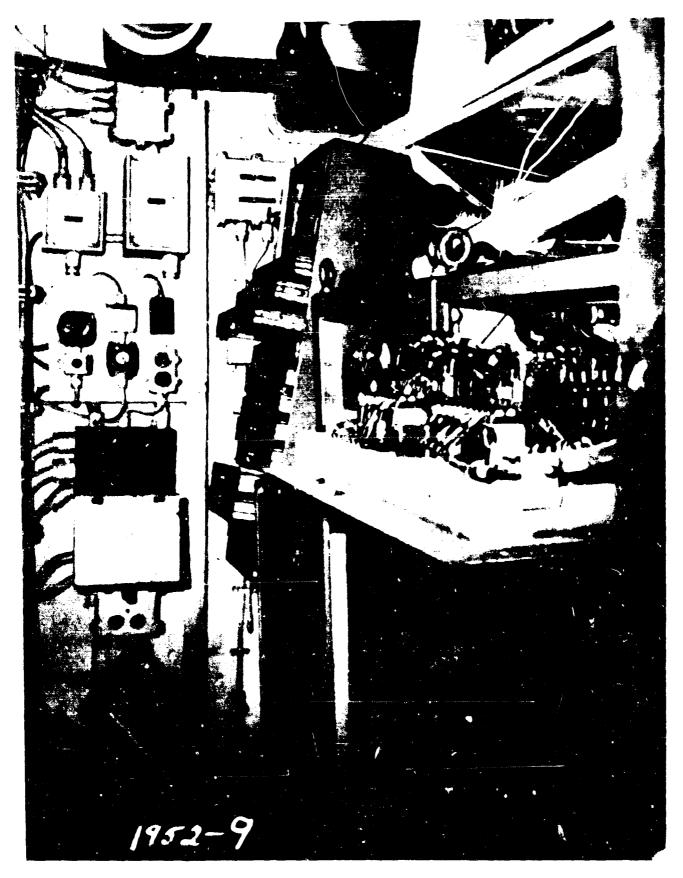
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FOST BAKER - SP TRANSMITTER_RECEIVER. The shock in this compartment was severe, but the equipment stood up well with the exception of damage to panel securing and meters. Arrow shows broken meter.

U.S.S. PENSACOLA (CA 24)

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POST BAKER - SP TRANSMITTER RECEIVER. The method of securing panels was inadequate. The damage sustained was due to the failure of the securing screws.

U.S.S. PENSACOLA (CA 24)

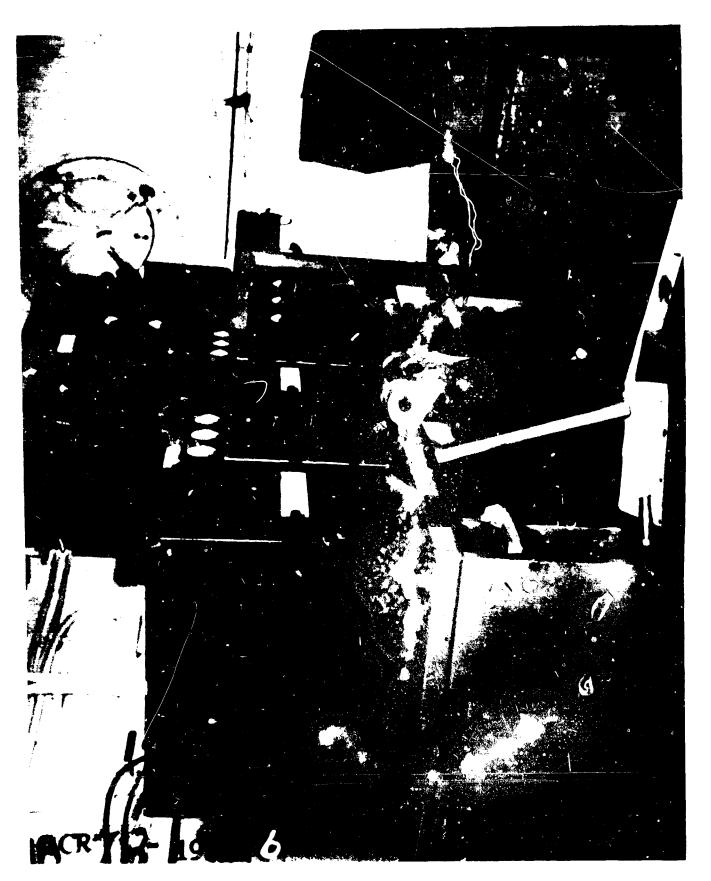
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POST BAKER - TDE. TDE was pulled out of its case and fell to the deck. The method of securing this equipment in its case was inadequate to withstand the shock.

U.S.S. PENSACOLA (CA.24)

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POST BAKER _ RBB'S. Radio equipment shown here stood up well. The tables and stowage cabinets suffered the greatest damage.

U.S.S. PENSACOLA (CA 24)

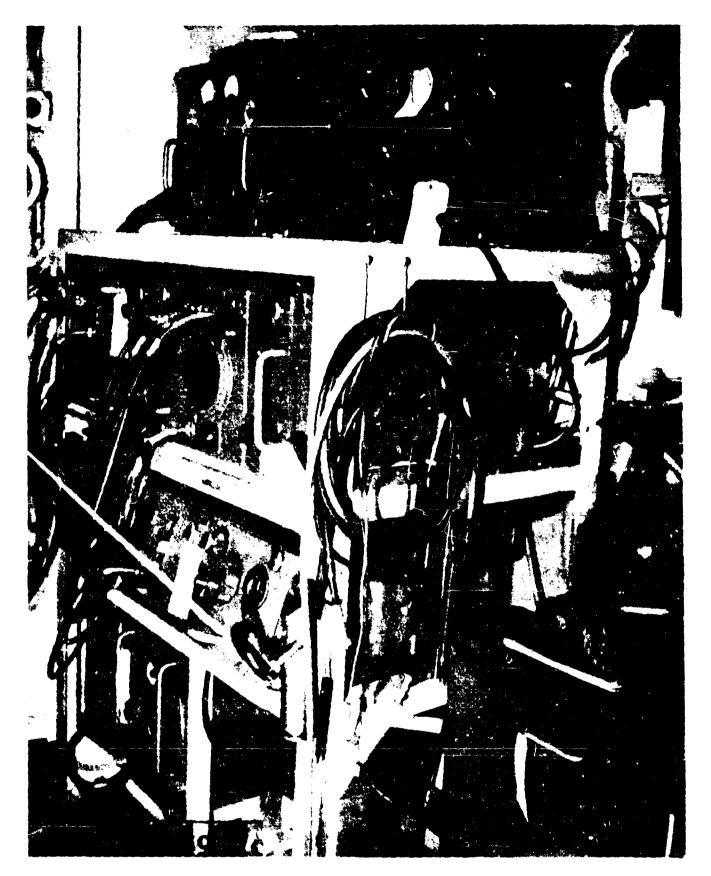
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POST BAKER - MK 28 FIRE CONTROL RADAR. Main battery forward. Main frame has been moved away from bulkhead and is leaning back at a 45 degree angle.

U.S.S. PENSACOLA (CA 24)

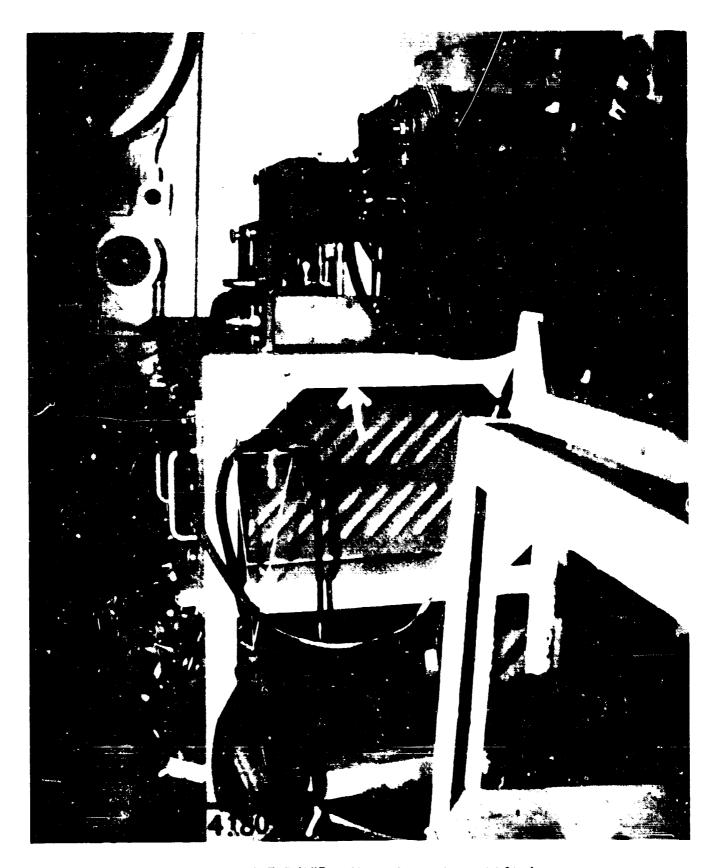
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PRE BAKER - MK 28 RADAR, AA FORWARD. General view of main frame. This equipment was undamaged during Test Able.

U.S.S. PENSACOLA (CA 24)

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POST BAKER _ MK 28 RADAR, AA FORWARD. Main frame has shifted away from bulkhead (arrow).

U.S.S. PENSACOLA (CA 24)

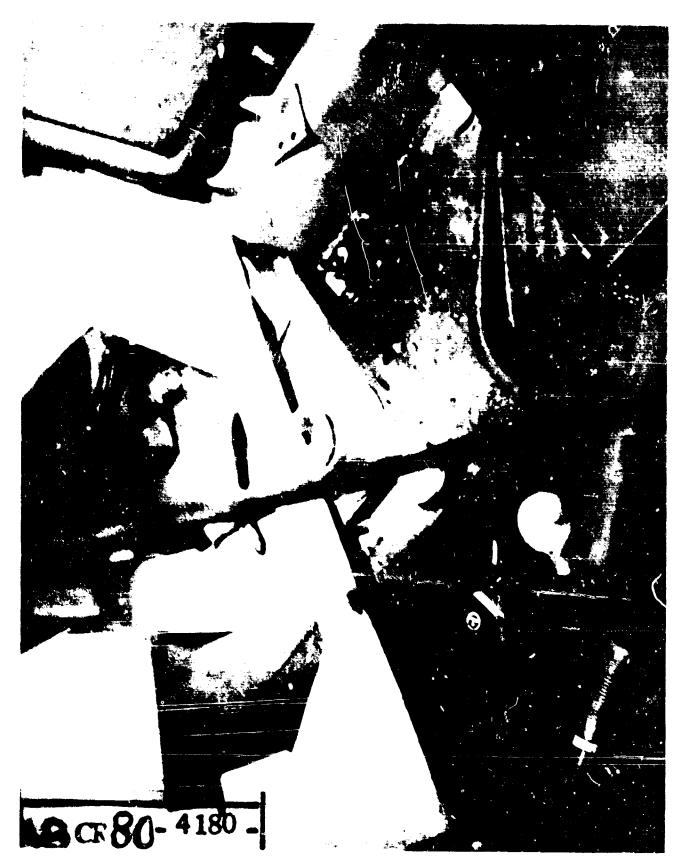
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PRE BAKER - MK 28 RADAR, AA FORWARD. Arrow points to main frame shock mounts. This equipment was undamaged during Test Able.

U.S.S. PERSACCIA (CA 24)

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POST BAKER - MK 28 RADAR, AA FORWARD. Note the change in position of main frame and the broken shock mounts.

U.S.S. PENSACOLA (CA D4)

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POST BAKER - MK 28 FIRE CONTROL RADAR. Shock mounts which supported the MK 28 main frame were broken.

SHORET

U.S.S. PENSACOLA (CA 24)

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TEST BAFER

U.S.S. SAIT LAFT CITY (CARE)

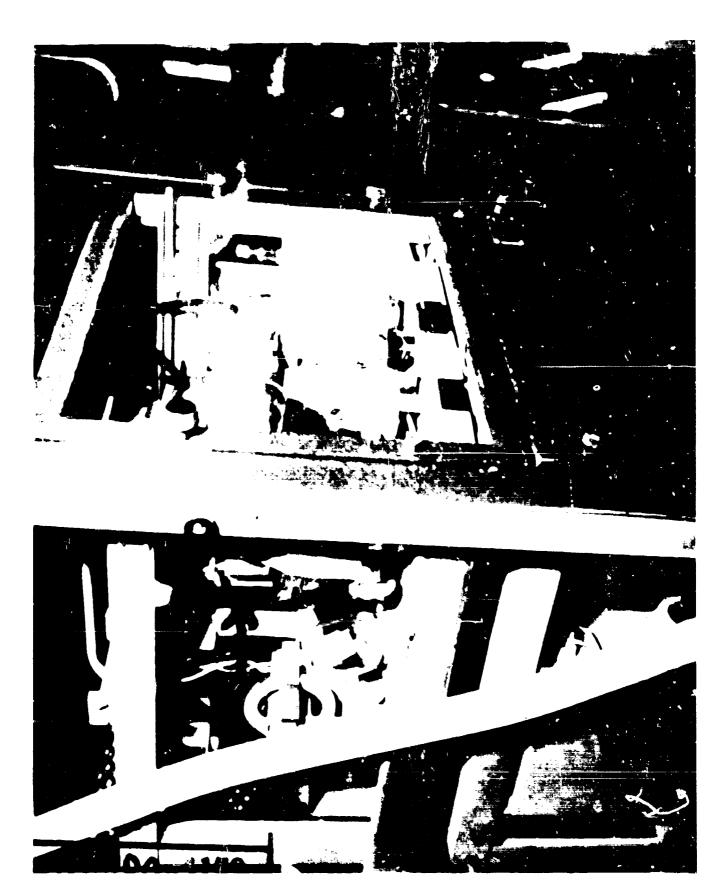
Range: 1200 yards

Bearing: 060°

Moderate damage was suffered by this ship, Good examples of keeper tube breakage in the MK 3 and MK 4 transmitters are shown here.

SECRET

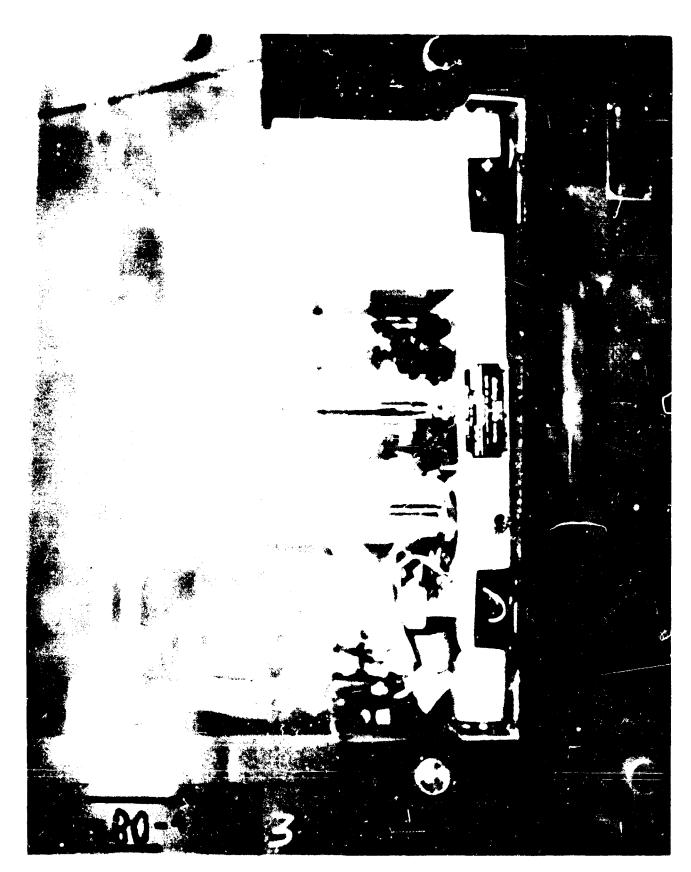
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POST BAKER - MK 4 RADAR MAIN FRAME. 705A clipper tube was blown out of socket (filament also broken). One of 701A tubes was broken and the other knocked out of socket, (See arrow).

U.S.S. SALT LAKE CITY (CA 25)

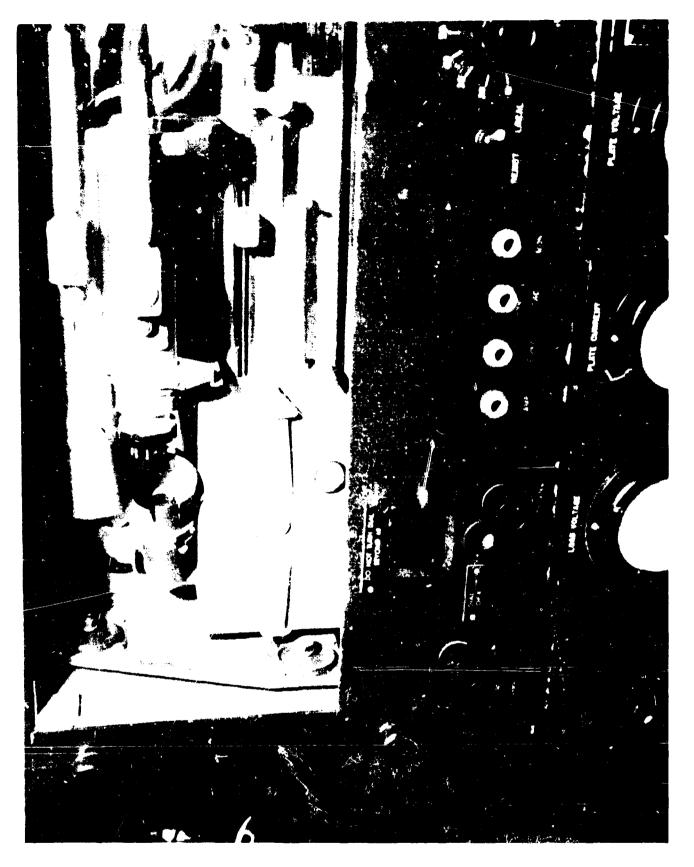
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FOST BAKER _ MK 3 RADAR _ MAIN FRAME. Transmitter front panel moved, showing broken 701A tube on left. Chassis holding magnetron magnets was bent, and magnets did not line up properly. This unit was not shock mounted.

U.S.S. SALT LAKE CITY (CA 25)

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POST BAKER - FORWARD MK 4 RADAR RF AMPLIFIER UNIT. Socket was knocked off and bent. This main frame was not shock mounted.

U.S.S. SALT LAKE CITY (CA 25)

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TEST BAKER

U.S.S. HUGHES (DD_410)

Range: 600 yards

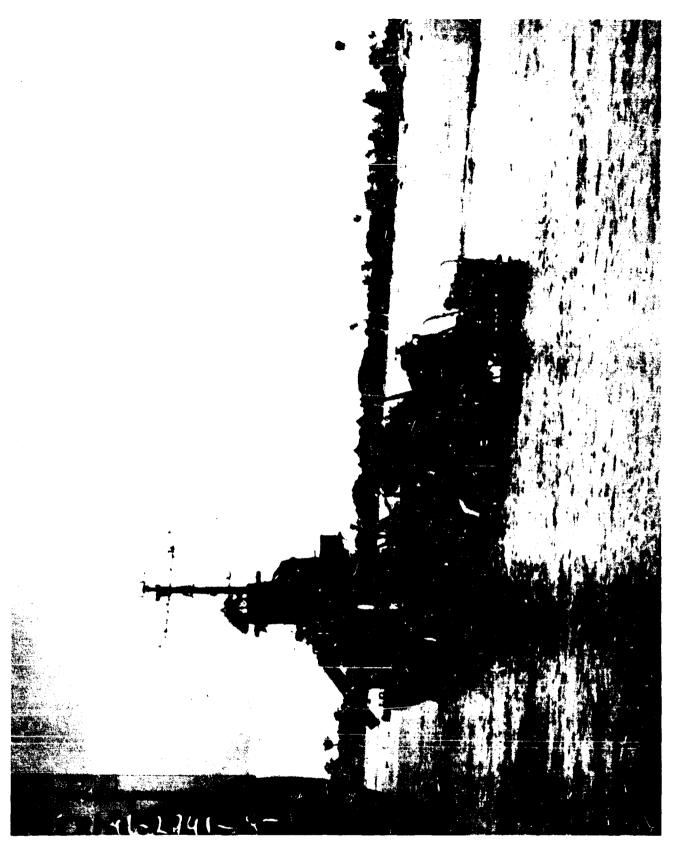
Bearing: 0750

This ship was heavily damaged and was towed to Enyu Island in a sinking condition to make subsequent inspections possible.

These pictures show the heaviest shock damage to electronic equipment suffered by any surviving ship.

SECRET

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POST BAKER - PORT QUARTER VIEW. Showing ship beached off Enyu Island.

U.S.S. HUGHES (DD 410) 8 4569

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POST BAKER - WHEEL HOUSE. This VC Remote PPI was thrown upward from its foundation and over on its top behind the wheel.

U.S.S. HUGHES (DD-410)

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POST BAKER - WHEEL HOUSE. The MAN Radio Equipment was thrown from its original position to the deck.

U.S.S. HUGHES (DD-410)

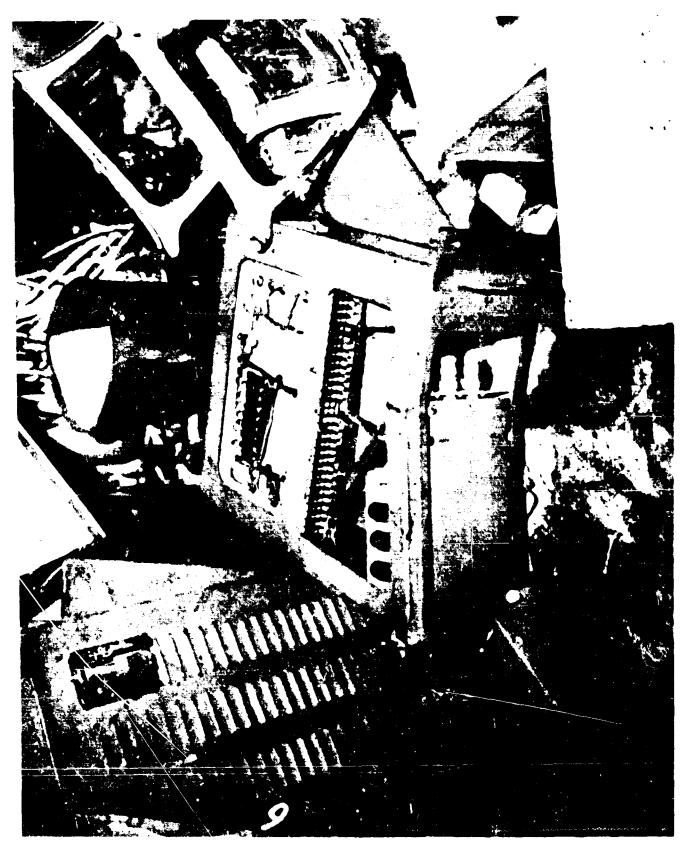
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<u>POST BAKER - SC MASTER PPI</u>. The point where the foundation of the console was torn loose is visible to the right of the steel in the upper left hand portion of photo. The two control units thrown from console are in foreground.

U.S.S. HUGHES (DD-410)

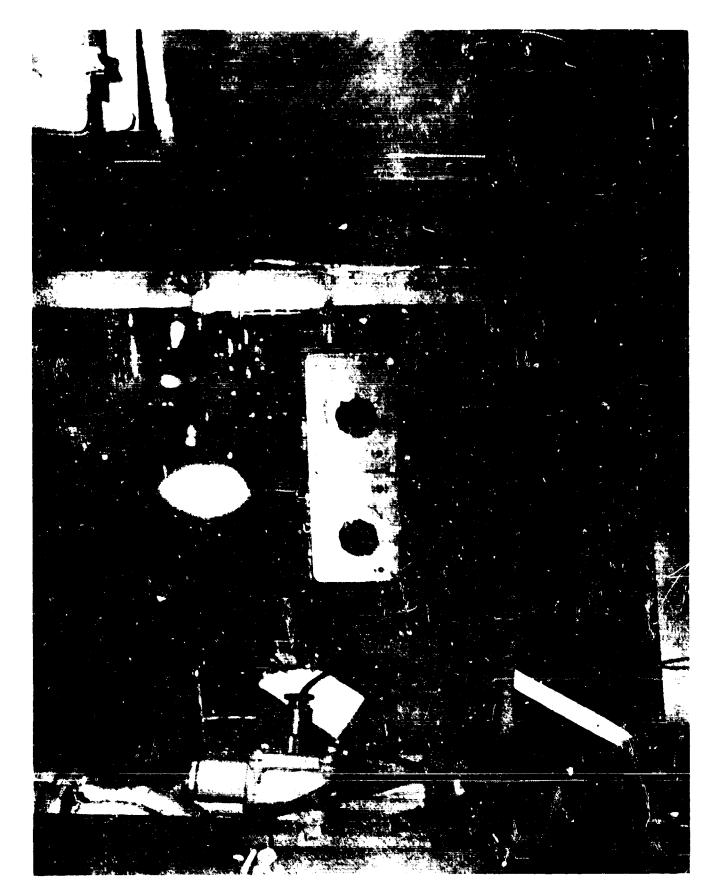
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POST FAKER - SC MASTER PPI. One of the two control units of the SC master PFI units which was thrown out of the console to the deck.

U.S.S. HUGHES (DD-410)

Page 1 6 074 Pages



PRIBAKER - Dag-3. View showing DAS is mounting above chart table. This equipment was underlyed during Test alle.

, 1.3, FUGHES (DD-410)

Face 201 Con 201 cm as



FC37 BAKER - DAS-3. This view shows how the Loran mounting racks were bent and demograd. The aquinment was found on the chart table, where it was turned by the shock.

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U.S.S. HUGHES (DD-410)

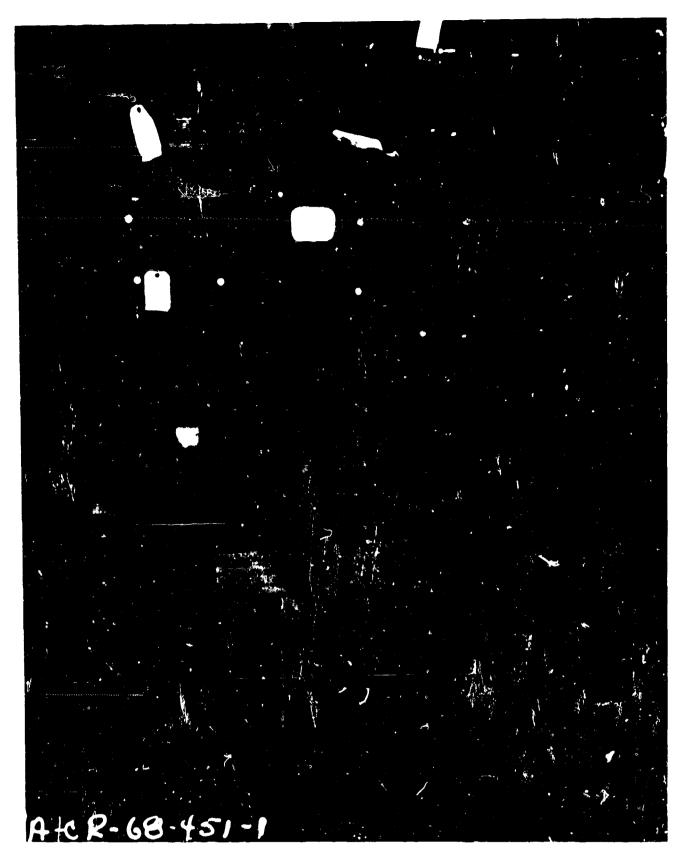
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POST BAKER - DAS-3. The Loran equipment is shown here on the chart table. It was thrown out of its mounting brackets. The mounting brackets, as in the case with the ABK brackets, were too light to withstand the heavy shock.

.8.3. HUGHES (DD-410)

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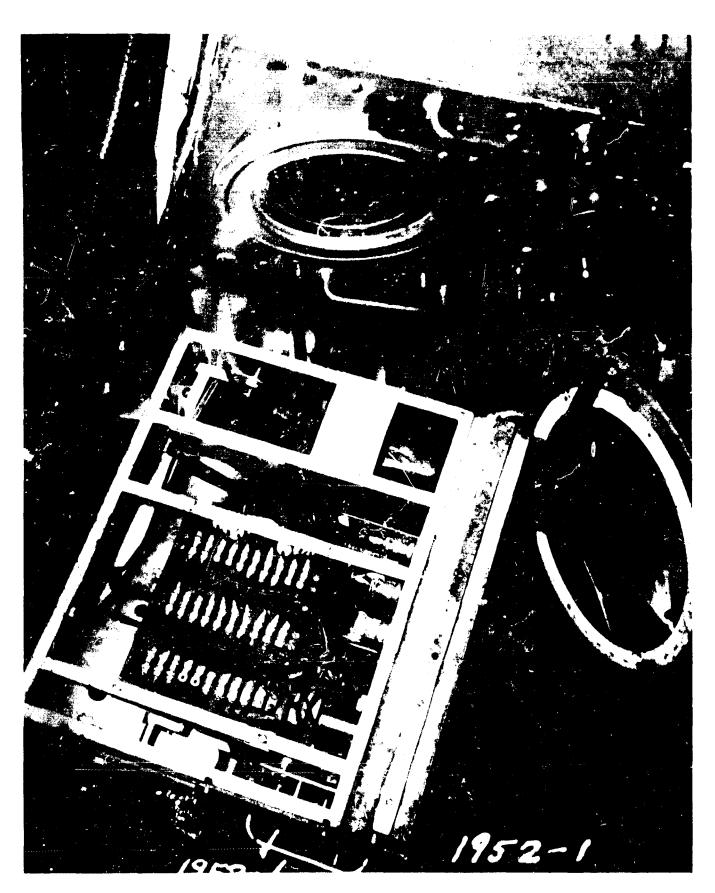


Pro-BAKER - SO OCHSOLA. General view. This equipment was unlemaged during Test Able.

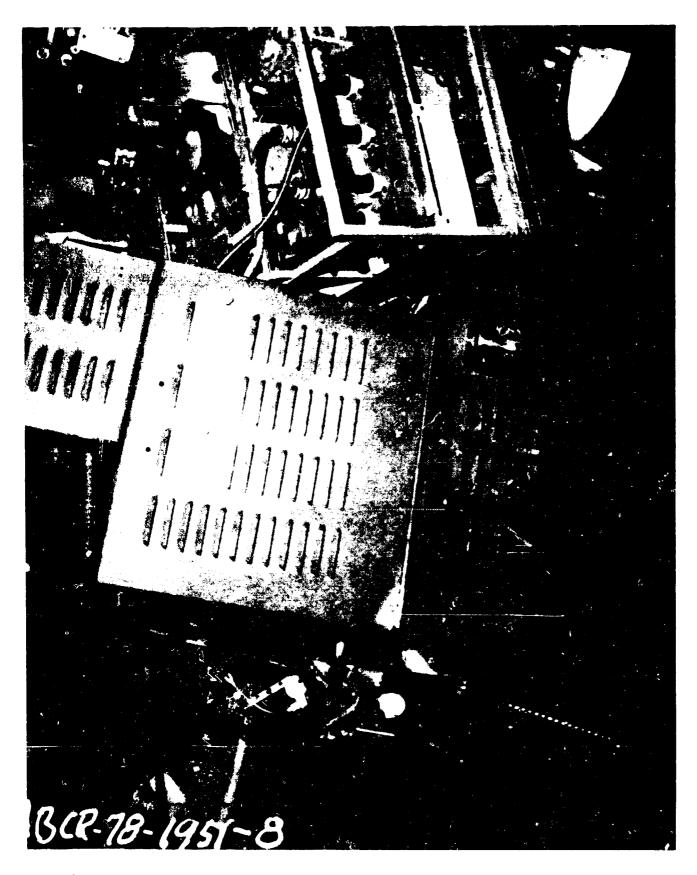
<u> 520Raji</u>

U.S.S. ENGHES (DD-419)

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POST BAKER - SC C MSOLE. The entire console was moved about 2 feet. The indicator was thrown out and was left hanging from its cables.



POST BAKER- SC CONSOLE. Top view showing the indicator on the right.

U.S.3. HUGHES (DD-410)

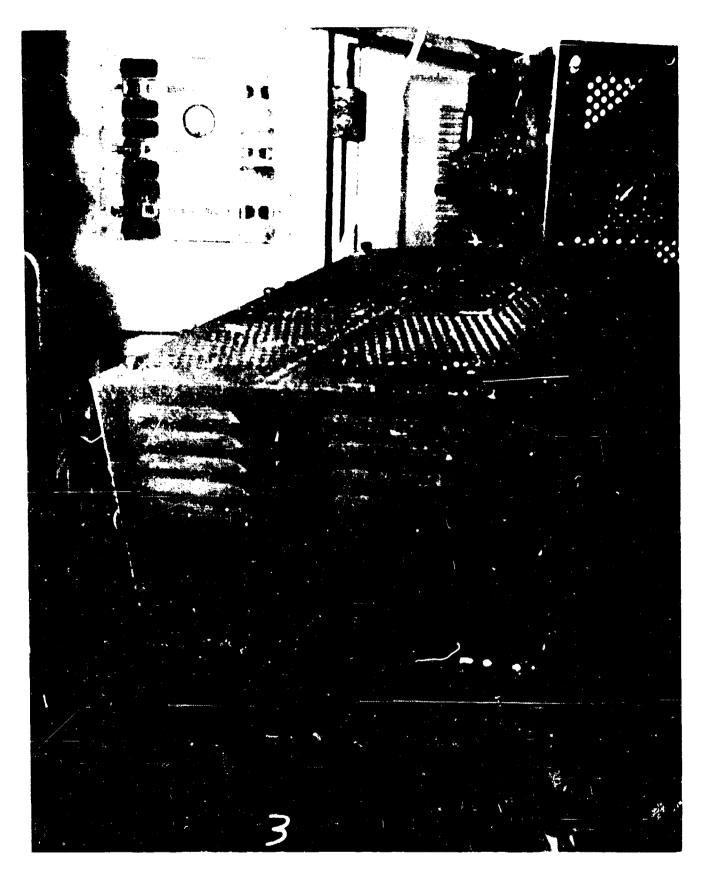
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POST BAKER - SC CONSOLE AND ABE'S. Rear view of the SC indicator, showing distance console moved. Two ABK's are shown still in position. The control unit for the ABE's is shown entangled in the cabling, where it was thrown or pulled from beneath ABK shelf.

U.S.S. HUGEES (LL-410)

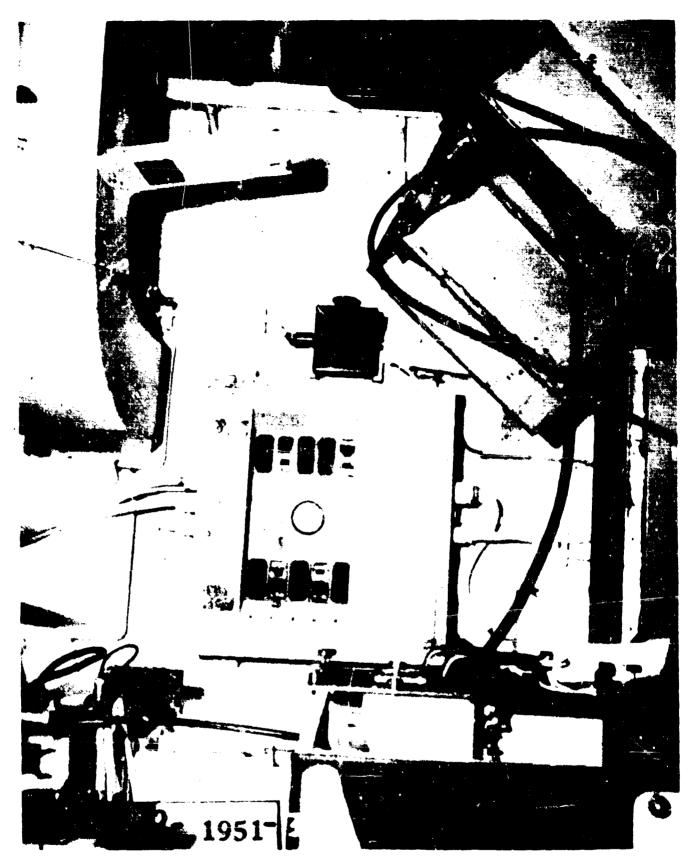
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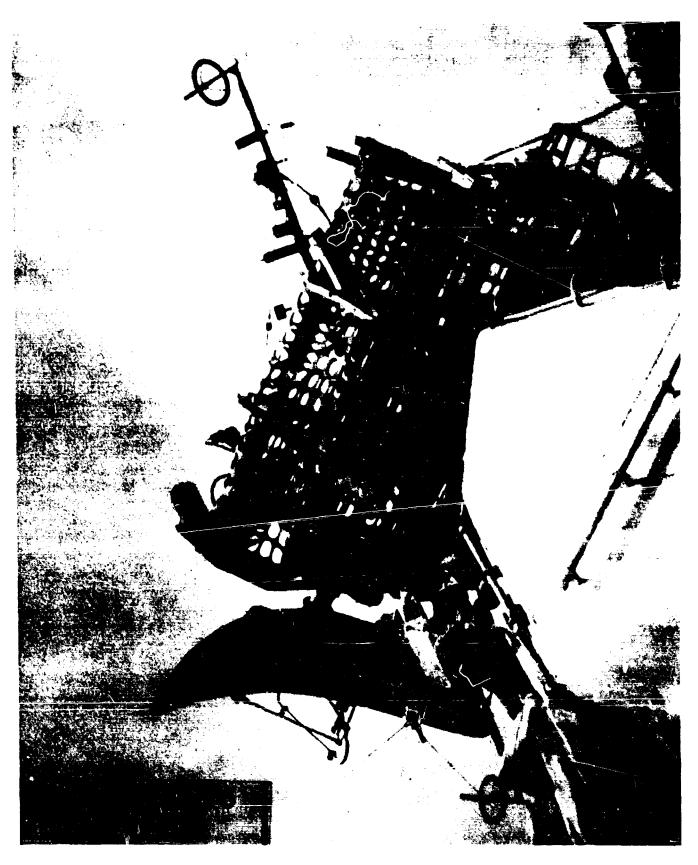
POST BAKER - RADIO CENTRAL. This TES transmitter was thrown from its foundation mounts to the deck in front of the TEK. The overall damage was severe.

U.S.S. HUGHES (DD-410)

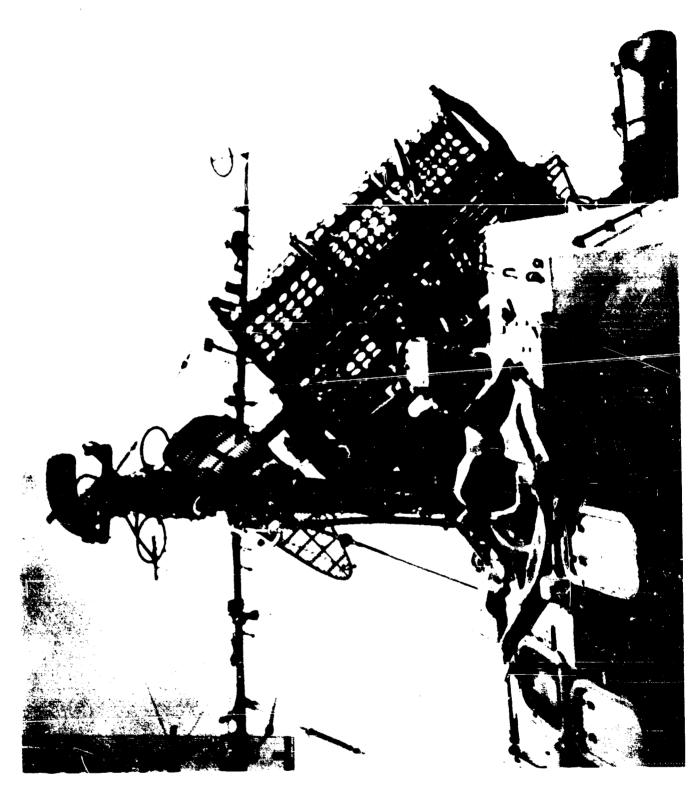
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POST BAKER - RADIO CENTRAL. Receiver mounting rack was torn loose from desk, and receivers were dumped on the deck.



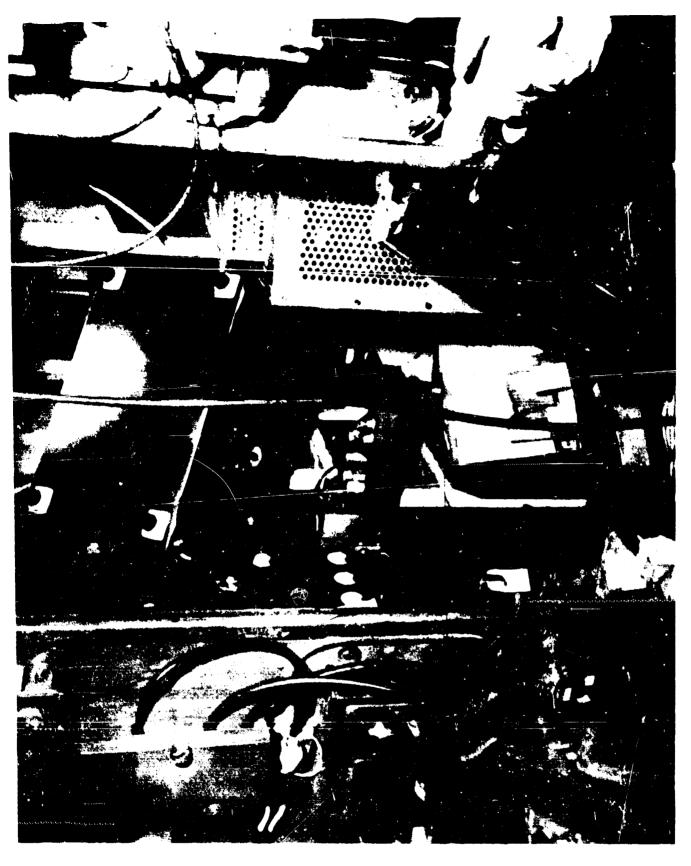
POST BAKER - MK 4 RADAR ANTENNIA.



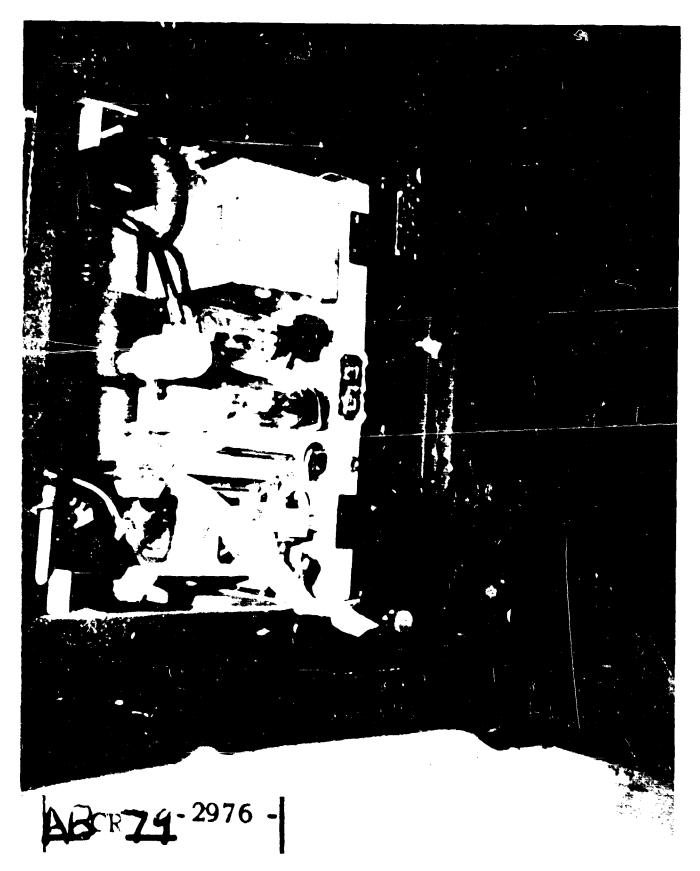
POST BAKER _ MK 4 RADAR ANTENNA. MK 4 antenna was knocked over.

U.S.S. HUGHES (DD 410)

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<u>POST BAKER - TRANSMITTER ROOM (FROM CIC).</u> Notice Mk 4 AGC unit hanging by its cables. Shock mounts had failed.



POST BAKER - ME 4 RADAR MAINFRAME. 701 keyer tubes were broken 'y Test Baker shock.

U.S.S. HUGHES (DD 410)

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TEST PAKER

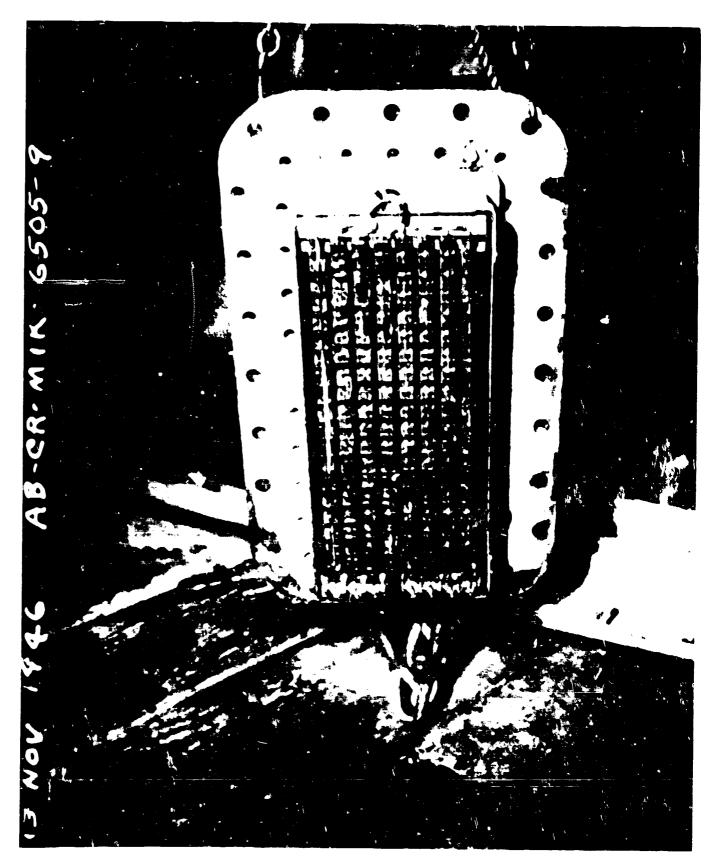
U.S.S. SKATE (00005)

Range: 900 yards

Bearing: 2300

The pictures of NGA projector are included for interest value only as it was not determined whether damage was due to Test

BAKER or beaching after Test ABLE. Equipment appeared to operate normally in shallow water after butt tests.

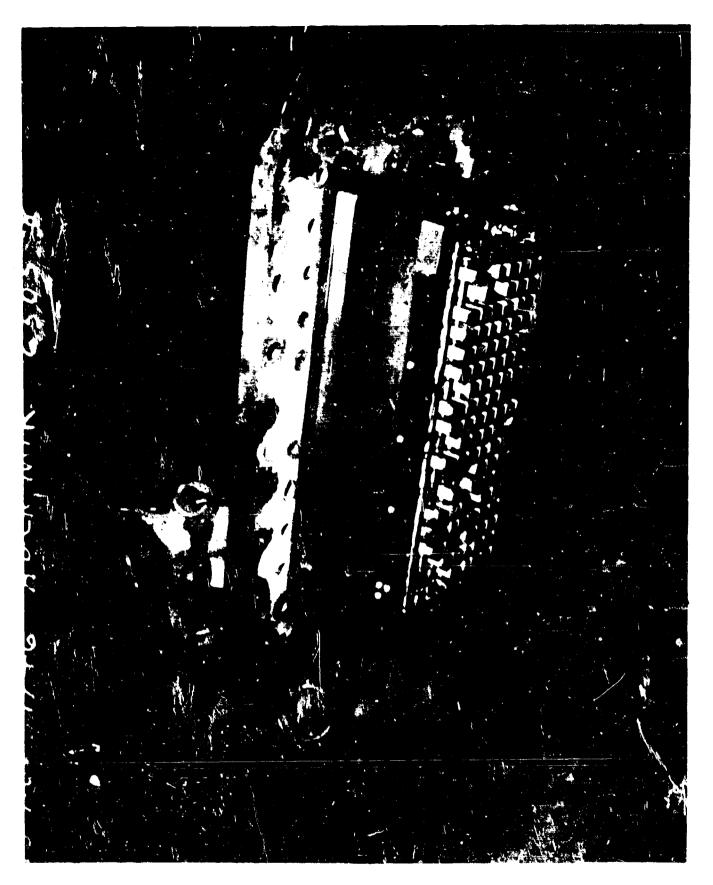


POST BAKER - NGA PROJECTOR. Pace view of cover plate and crystal assembly, showing broken and missing crystals.

310.8<u>21</u>

U.S.S. SKARR (SS-305)

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FOUR BAKER - 10A IRCCECTOR. Side view of cover plate and crystal assembly. Note downered and missin, objects.

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U.S.S. SKATE (SS-305)

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POST BAKER - NGA PROJECTOR. Case with crystal assembly and cover plate removed. Note t oken and loose crystals.

U.S.B. SKATE (SS-305)

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TEST BAKER

U.S.S. FALLON (AFA81)

Hange: 500 yards

Bearing: 3050

This ship received heavy damage due to its proximity to the center of the blast. All types of damage to radar and communication equipments are depicted by this relatively complete collection of photographs. Note particularly the communication entenna pictures, which indicate that these antennas and rigging stood up fairly well even at this close range. The damage sustained was probably caused by falling water.

There are a number of good before and after pairs of photographs which make excellent comparison for details on damage. This ship suffered no damage from Test ABLE and all damage shown here can be attributed to the BAKER explosion.

SECRET

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POST BAKER _ COMMUNICATION ANTENNAS. TBS antenna (arrow). Sand on the deck of this vessel indicates falling water may have caused this damage.

U.S.S. FALLON (APA 81)

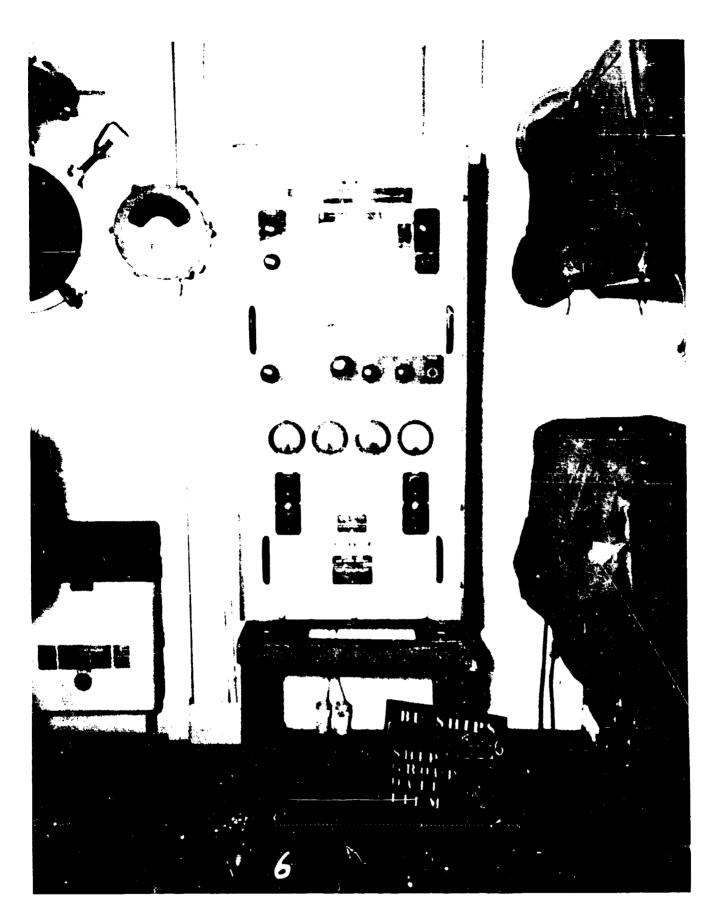
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PRE HAKER _ VD_2 FRONT VIEW. This equipment was undamaged during Test Able.



POST BAKER - VD-2. Cables to switch were broken when switch mounting feiled. There was no other damage to unit.



PRE BAKER - NMC AND SCR-608. NMC in pilot-house with SCR-608's at right under canvas covers. This equipment was undamaged during Test Able.

U.S.S. FALLON (APA-81)

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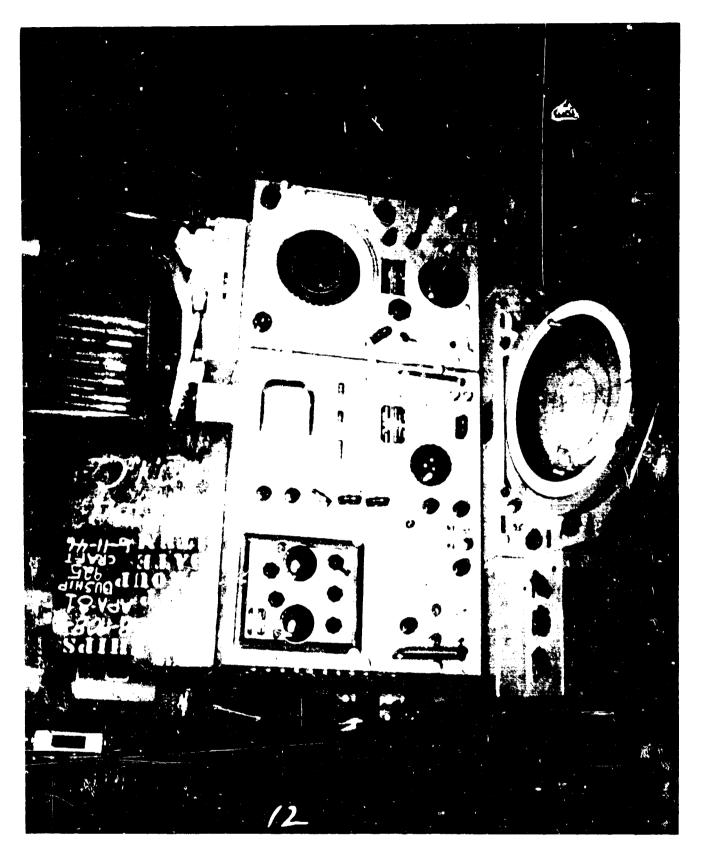
thrown from their foundations.

POST BAKER - NMC AND SCR-608. The NMC foundation warped, tilting equipment away from bulkhead. The SCR-608's were partially

SECRET

U.S.S. FALLON (APA-81)

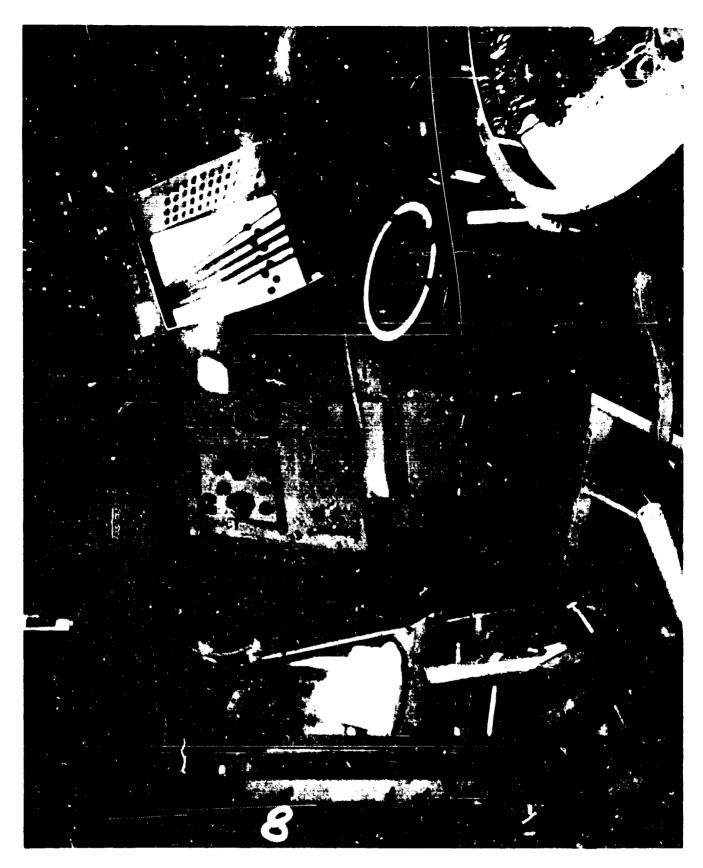
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PRE BAKER - SC-4 INDICATOR FRONT VIEW. This equipment was undamaged during Test Able.

U.S.S. FALLON (APA 81)

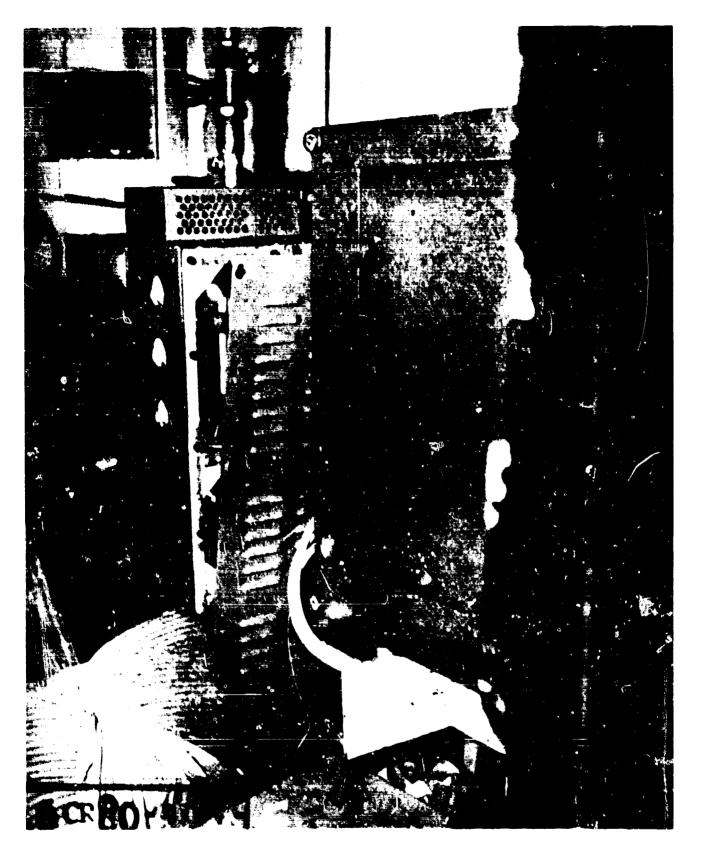
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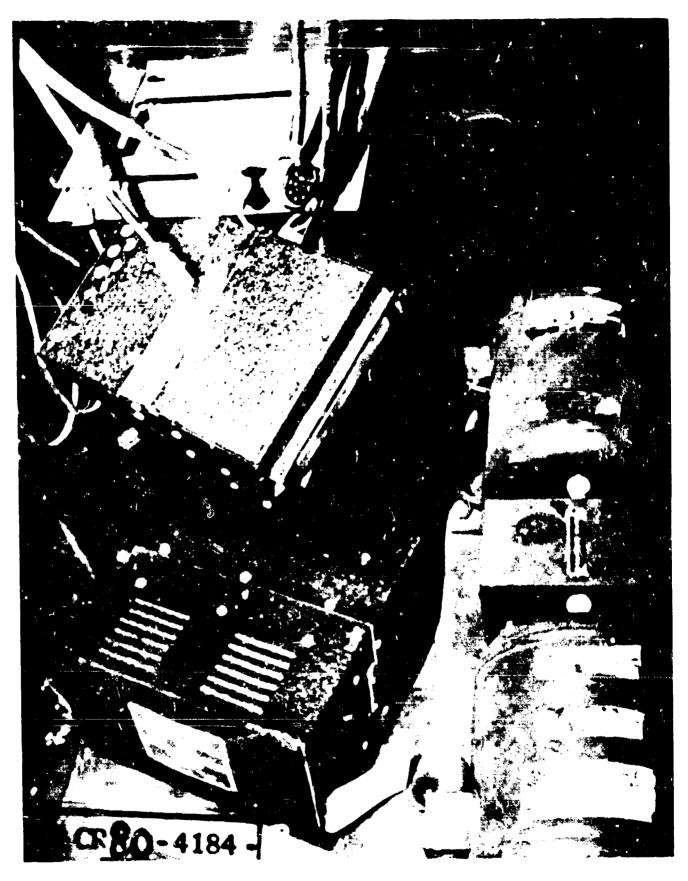
<u>POST BAKER - SC-4 INLIGATOR</u>. The SC-4 indicator was seriously damaged as were most of the other equipment in SIC.

U.S.S. FALL " (AFA 81)

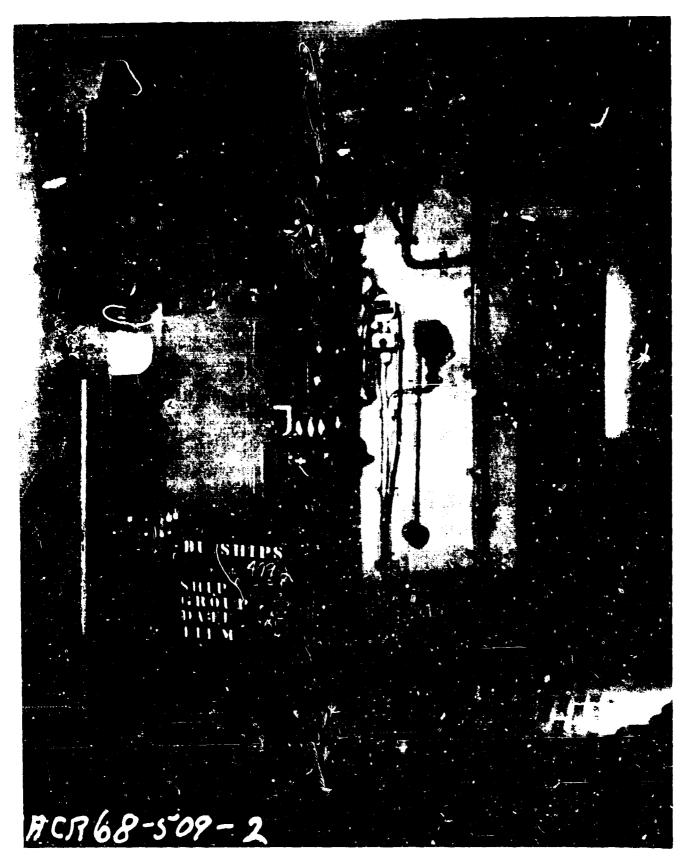
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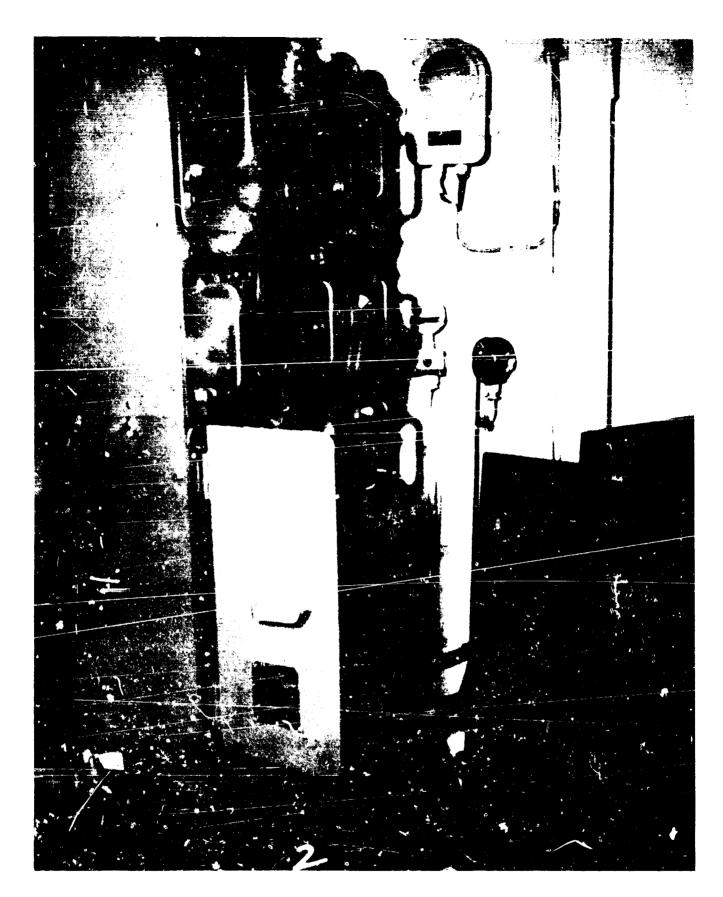
<u>PUST BAKER - SC-4 AND BM-1</u>. SC-4 ring oscillator tubes were broken. The hour meter broke away from its mounting ring and top shock mounts came apart, allowing equipment to make violent contact with bulkhead and adjacent equipment. The BM-1 is in foreground.



POST BAKED - ABK. The securing brackets of these aircraft type equipments were too flimsy to match the strength of the Lord mounts. Often the results were as shown here.



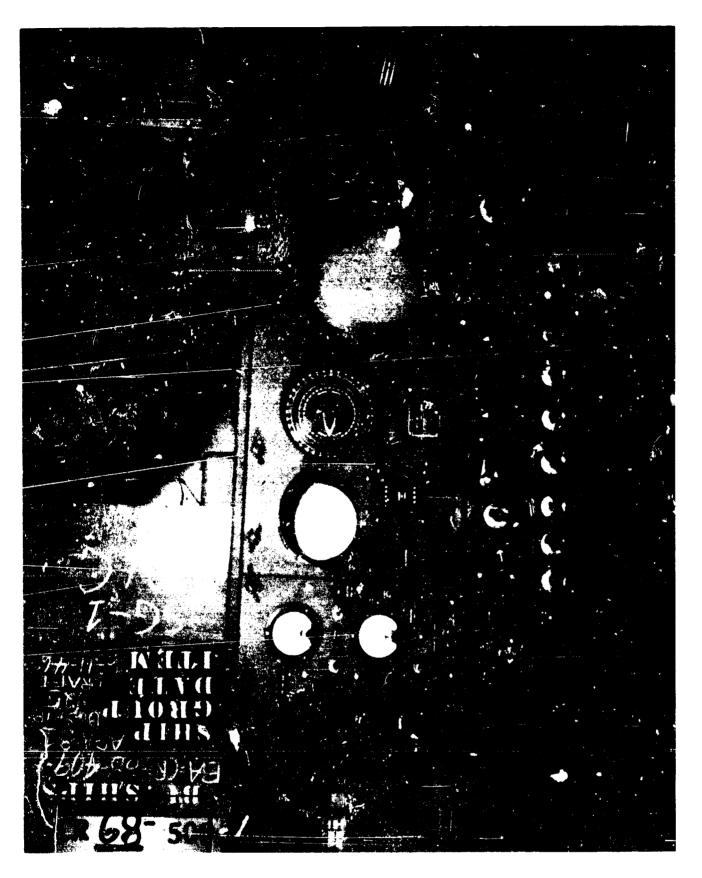
PRE BAKER _ SG_1 TRANSMITTER. This equipment was undamaged during Test Able.



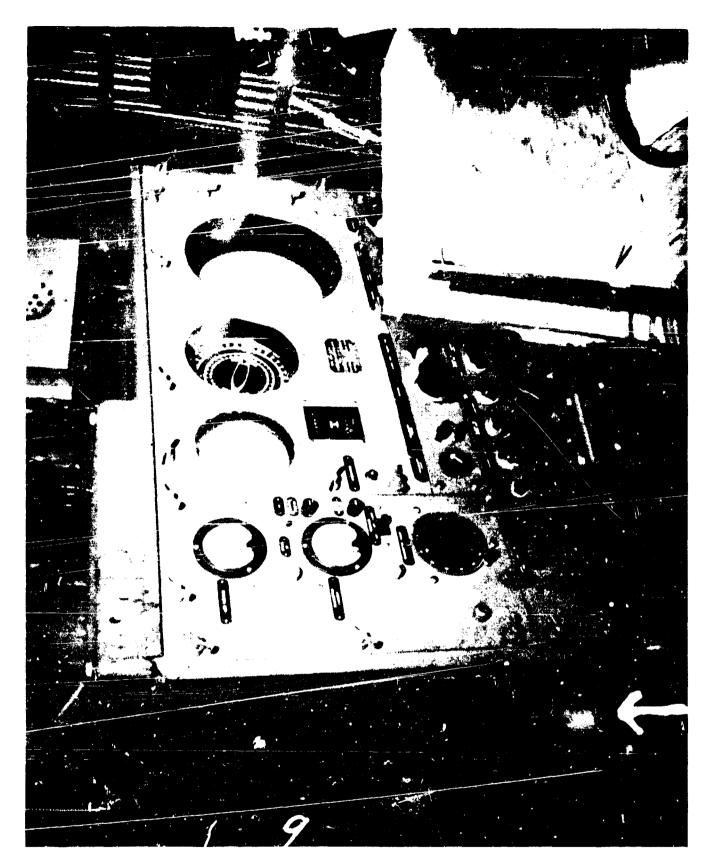
POST BAKER - SG-1 TRANSMITTER. Only damage was to magnetron, which dropped out of its mounting (apparently due to insufficient tightening of mounting screws). The weld parted on the main foundation, allowing main frame to tilt to the left of the picture. The ruther gasket around modulation generator has shaken out of its slot. Probably due to vibration.

U.S.S. FALLON (APA 81)

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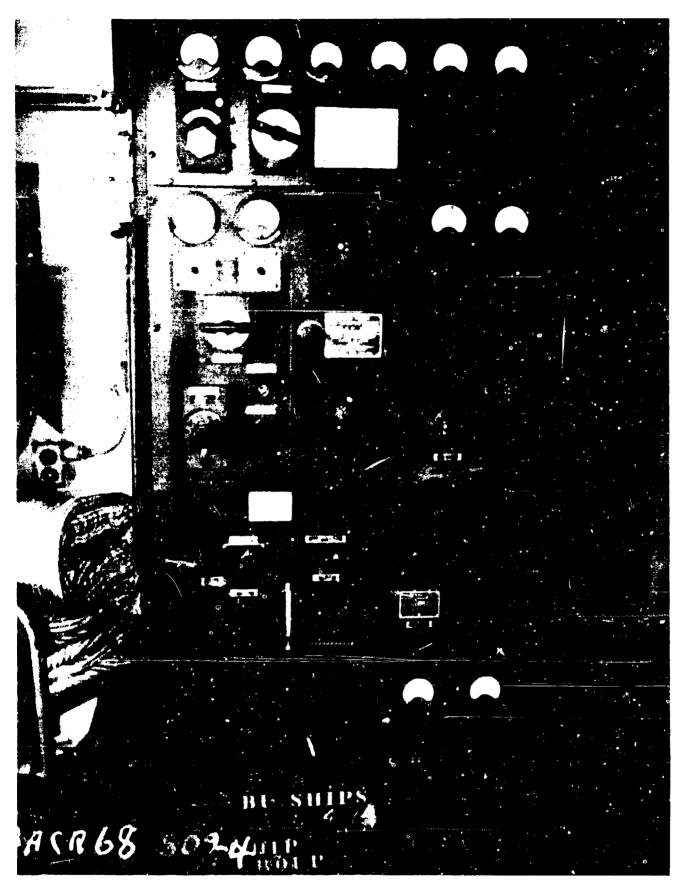
PRE BAKER - SG-1 INDICATOR FRONT VIEW. This equipment was undamaged during Test Able.



POST BAKER - SG-1 INDICATOR. This was the only equipment of its type in which the shock mount failed. The arrow points to center row of shock mounts. No other damage to indicator was noted.

U.S.S. FALLON (APA 81)

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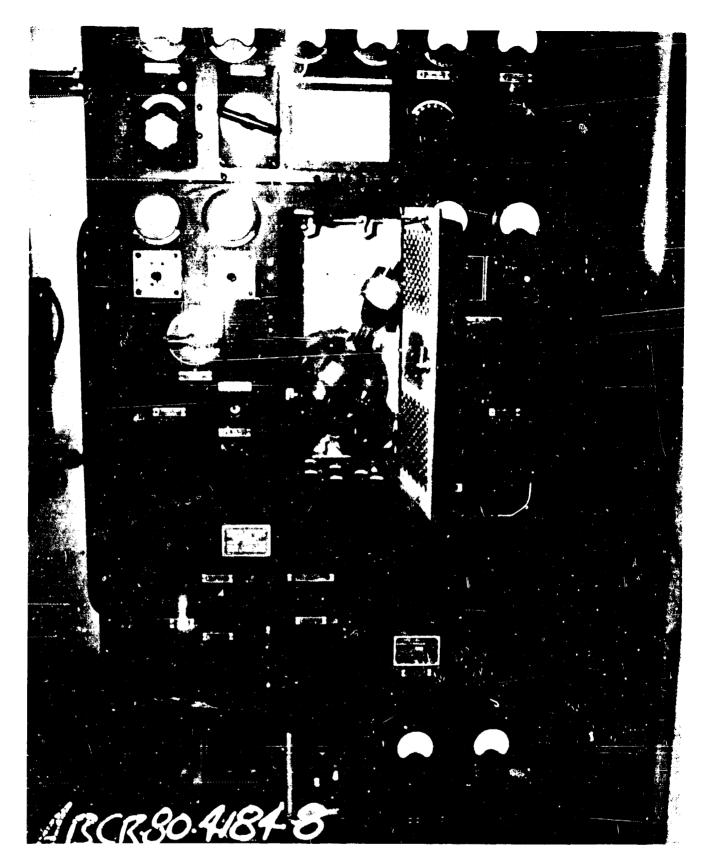


PRE BAKER - TBK-17. Front view. This equipment was undamaged during Test Able.

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U.S.S. FALLON (APA-81)

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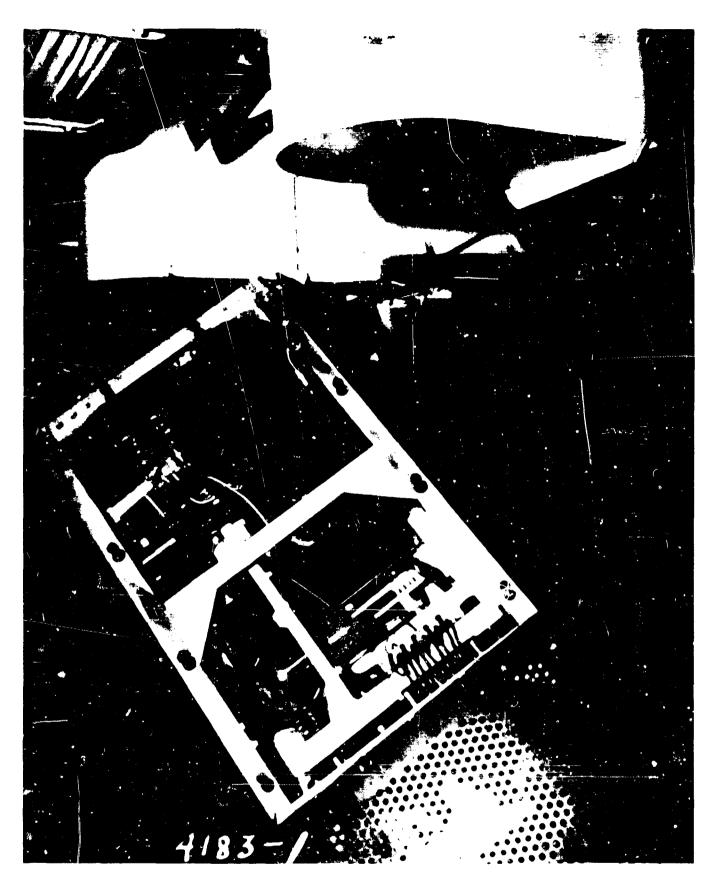
POST BAKER _ TBK_17. PA tube was shaken from its mounting clips.



POST BAKER _ RADIO I. Shows damage to TBK_17 and TCP_2.



POST BAKER - RADIO I. View of the TCP-2.



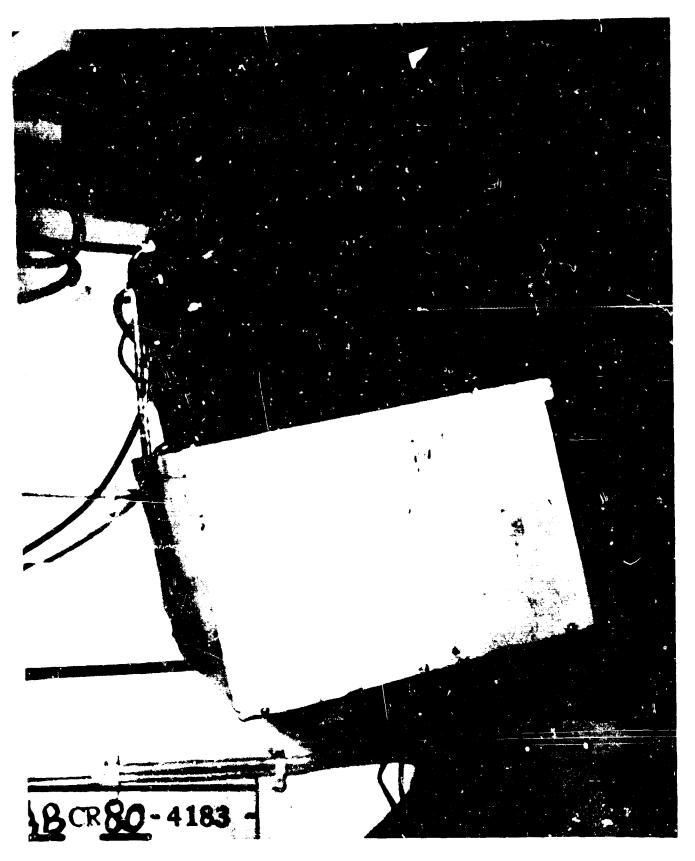
<u>POST RAKER _ RADIO I</u>. TAJ_19 foundation bolts were sheared off and equipment toppled over, breaking cables, jumming dials and warping frame.

U.S.S. FALLON (APA_81)

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<u>POST BAKER - RADIC I.</u> Radiophone transfer panel. Door was thrown open, ripping off upper hinge, and left hanging an aebles in this position. At right is corner of TAJ-19.



POST BAKER _ RADIO I. These desk tops were fastened with self-tapping sheet-metal screws. They were unable to withstand the thrust of two heavy receivers mounted on them.

SECHET

U.S.S, FALLON (APA 81)

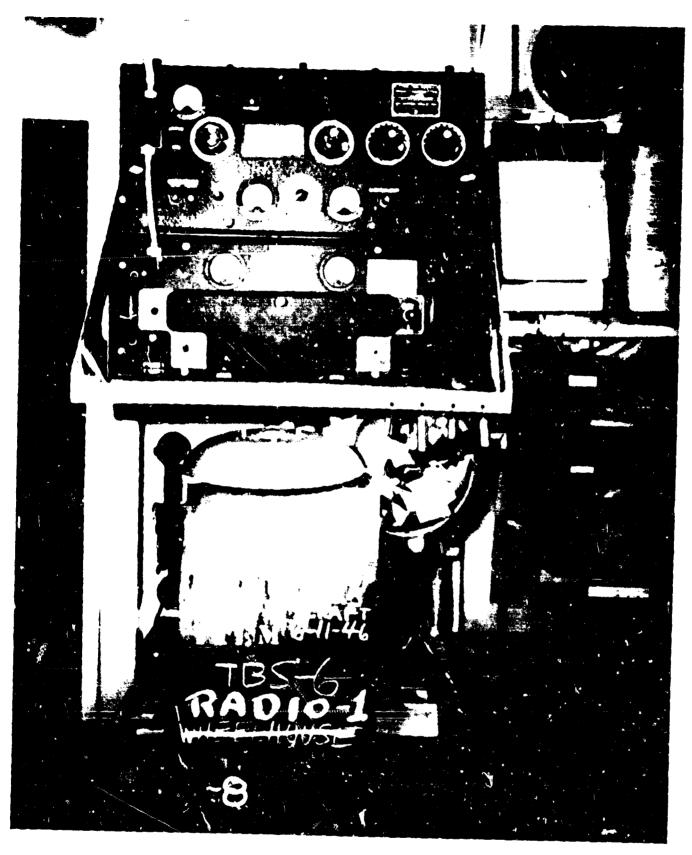
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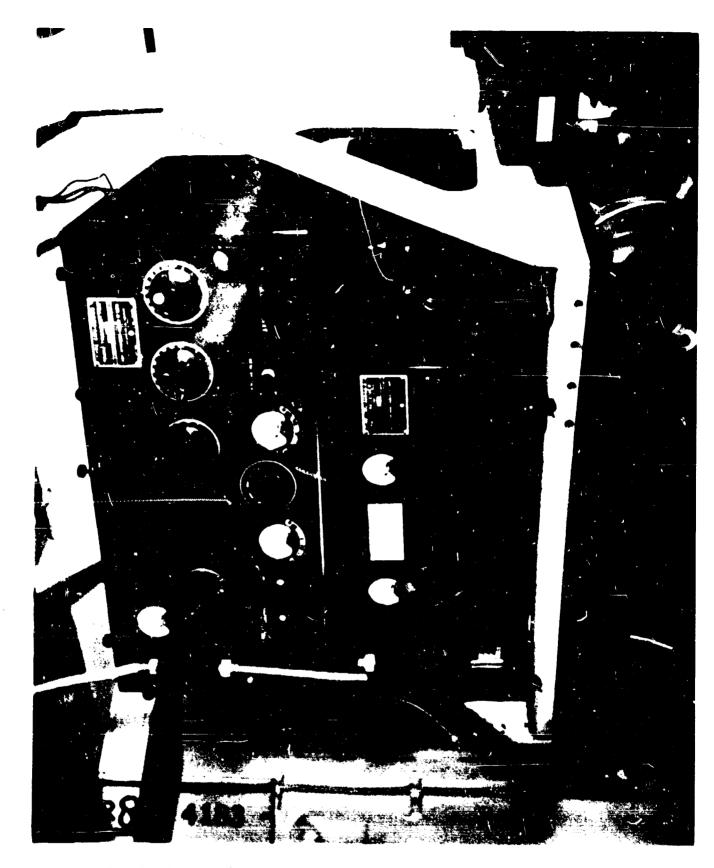
<u>POST BAKER - TUBE LOCKER</u>. Although the locker was thrown from its mounting by the blast, very little tube damage occurred because of protection furnished by the cardboard cartons.

U.S.S. FALLON (APA 81)

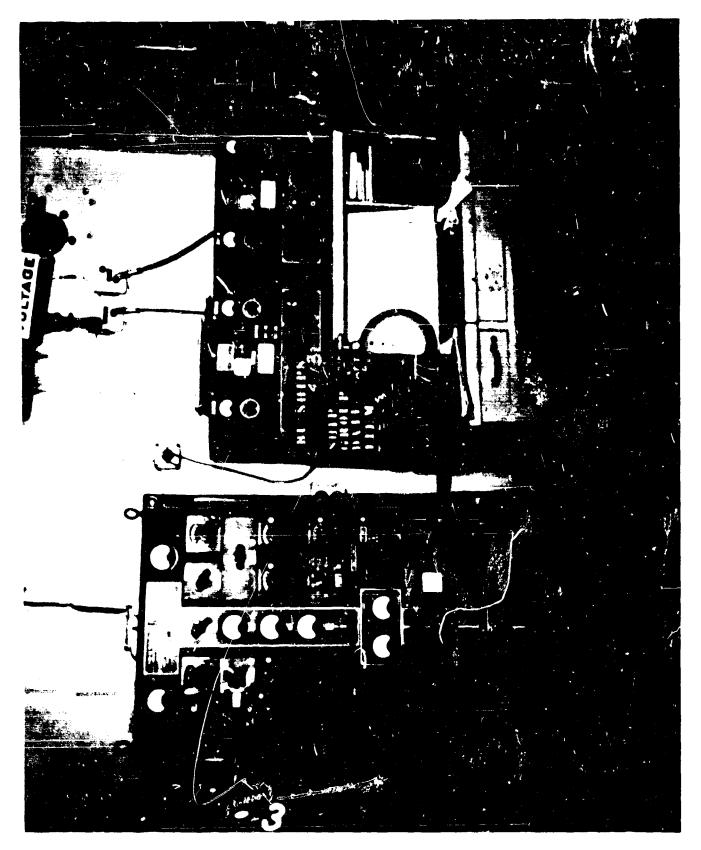
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PRE BAKER _ RADIO I. View of TBS_6. This equipment was undamaged during Test Able.



<u>POST BAKER - RADIO I.</u> Violence of shock sheared mounting bolts between receiver and transmitter on TBS-6, resulting in lamage to receiver transmission line.



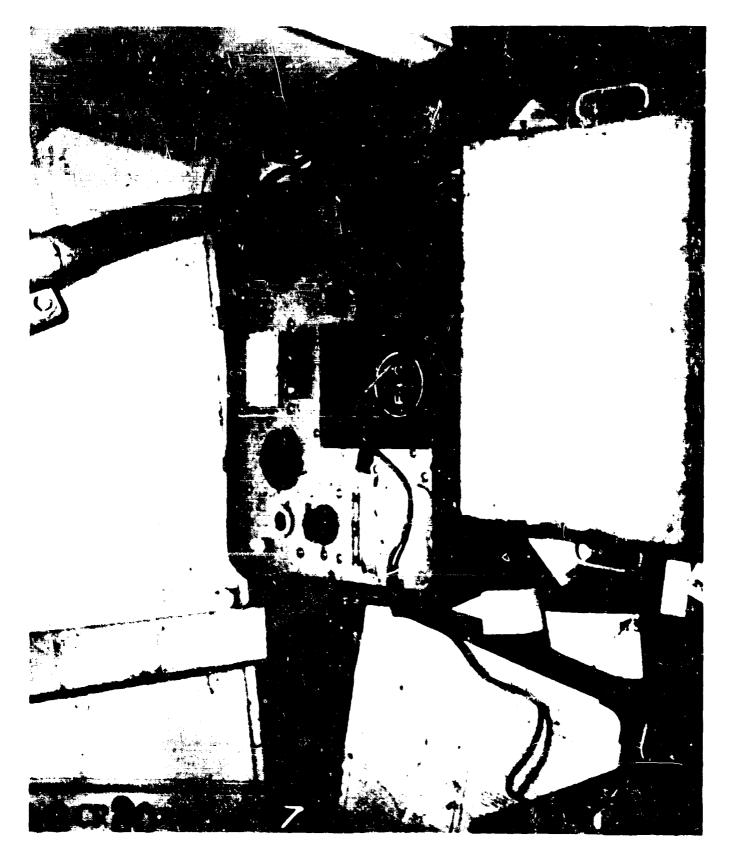
PRE BAKER _ RUTE II. Shows TDE_3 and RUK'RU. This equipment was undomaged during Test Able.

t. 1.8. FALLON (APA 81)

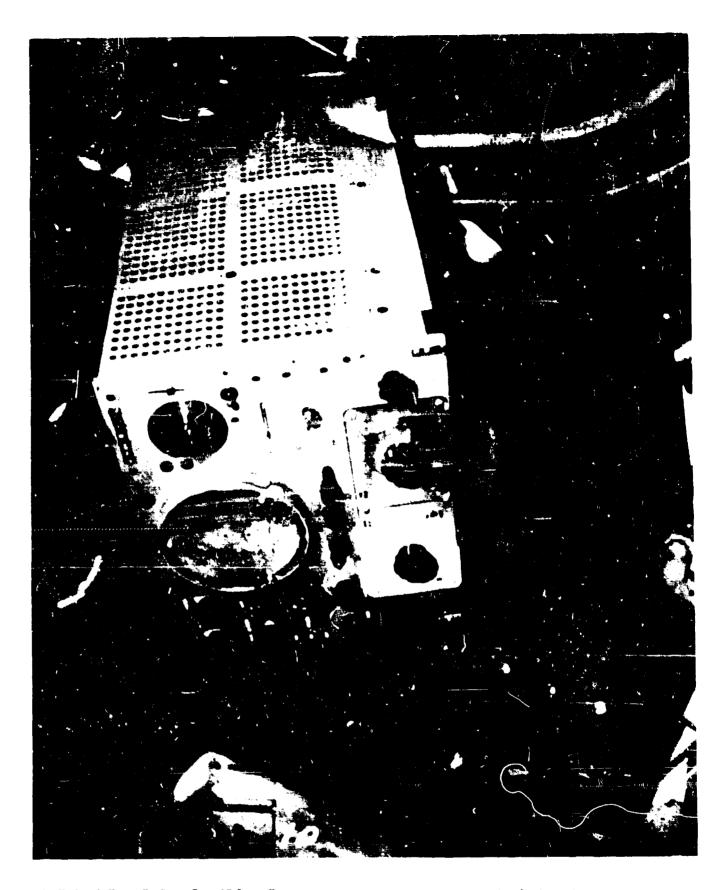
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POST BAKER - RADIO II. Operating position showing twisted deak. At extreme lower edge of picture is the empty over supply cabinet from which power supply was thrown to deck.



POST BAKER _ TCY_1 PORTABLE TRANSMITTER. Torn loose from its stowage rack.



POST BAKER - DAS-3 IN CIC. The aircraft type mounting failed and indicator was dammed between vent and plotting table.

U.S.S. FALLON (APA 81)

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TEST BAKER

U.S.S. GASCCYADE (APA85)

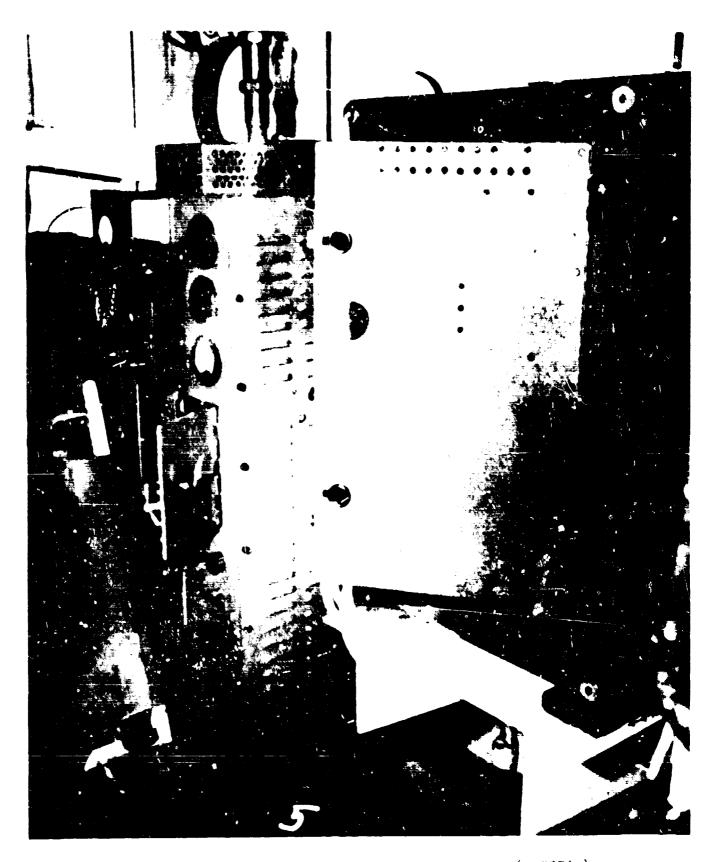
Range: 600 yards

Bearing: 150°

This ship received heavy shock damage. Several cases of damage caused by units tearing loose from shock mounts are included.

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Word broken. bM-1 to in Coreground.

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U.S.S. GASCHADE (AFA 85)

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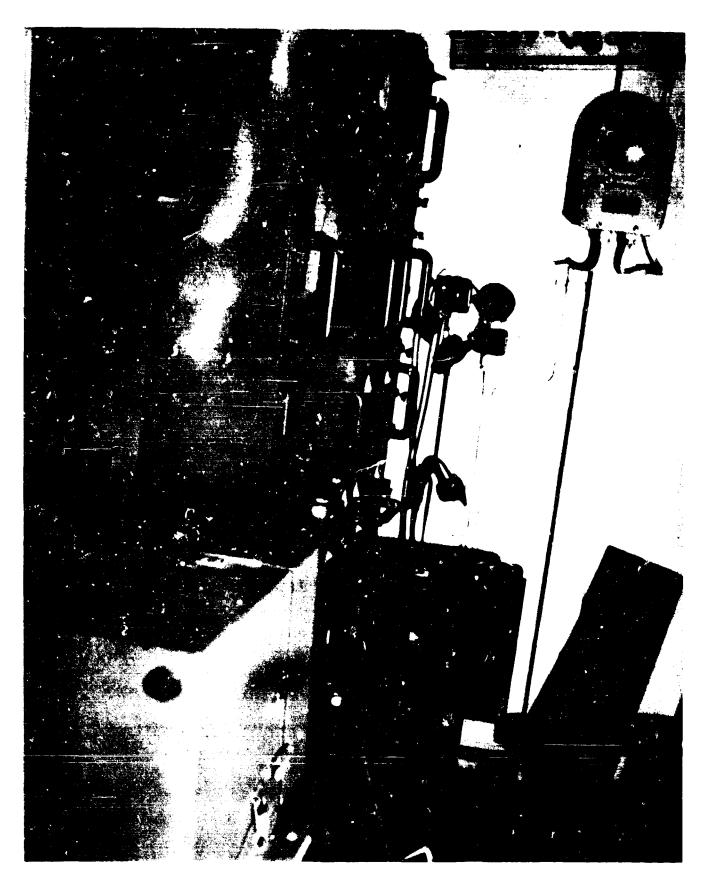


FORT WHER - S3-4 INDINGER. The bearing control unit and receiverindicator were torn loose from master PFI and suffered domage in subsequent tossing about.

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U.S.S. GASUSHADE (APA 85)

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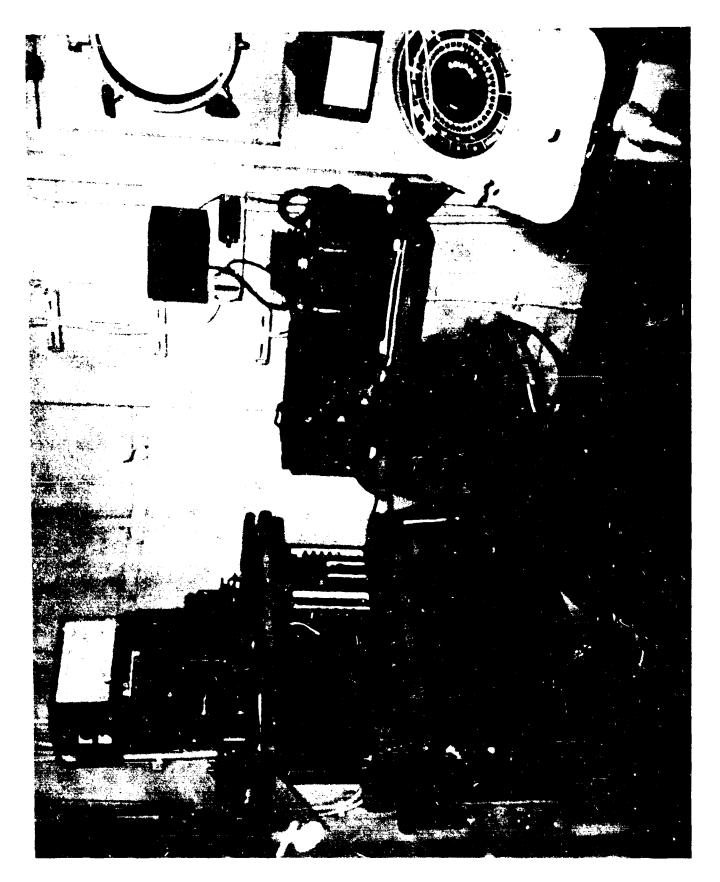


POST BAKER - SG MAIN FRAME. One 304_TH tube was shattered, and two 705-A's were shaken from their sockets. In this same compartment, the FN trans-ceiver was thrown from its cabinet and the ABK's torn from their shock mounts.

SEURET

U.S.S. GASCONADE (APA 85)

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FOST BAKER - FORT STDE OF PILOT-HOUSE. Showing SCR-608 and SCR-624 equipments. Shock mounts separated on 624. Upper 608 was thrown to deck.

SHOR IT

U.C.S. GASCOMAPM (APA 85)

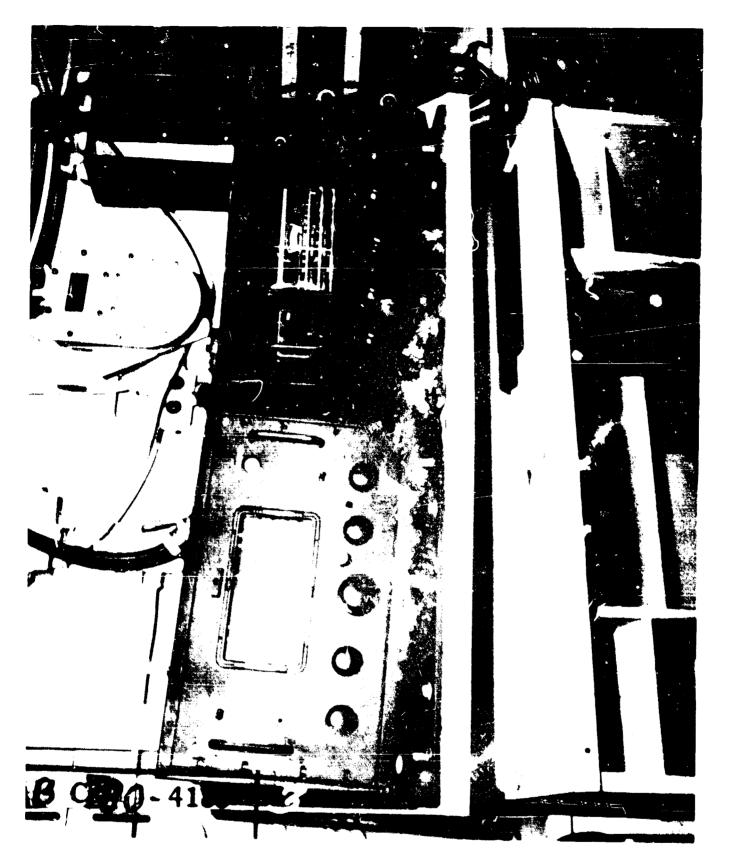
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<u>POST BAKER - TCP-2</u>. These equipments were too heavy for the type shockmounts used. The shockmounts gave way, rendering the unit inoperative.

U.S.S. GASCONADE (APA 85)

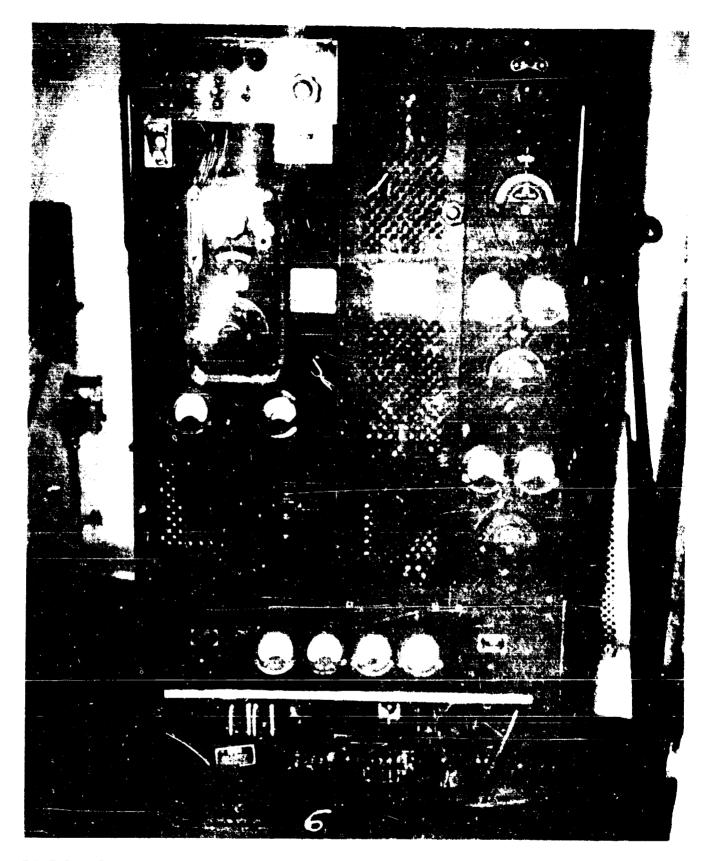
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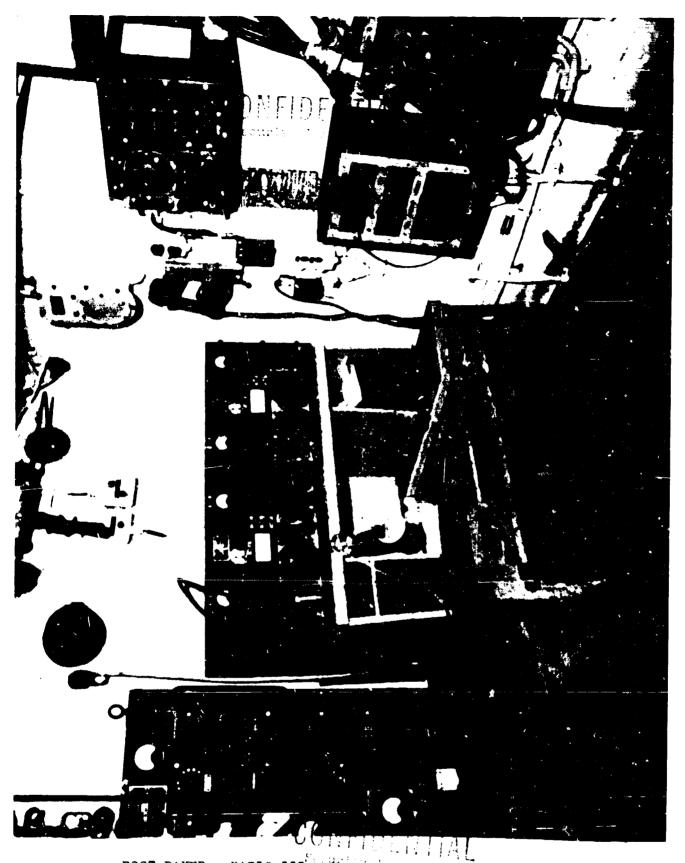
POST BAKER _ RBO'S IN RADIO I. Shock mounts failed on receiver to left. No other damage to receiver.

U.S.S. GASCONADE (APA 85)

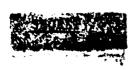
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POST BAKER - TEK-18 IN RADIC III. Initial derage the tosock was light, with two meters broken at center left of dicture and lower panel open and warped, apparently by flying defrie. Succeptany damage, due to water splashing around on deck, rendered endoment inoperative until cleaned and dehydrated.



POST BAKER - RADIO III. View snowing damaged desk and immersed receiver power supplies. TDE at left was rendered inoperative by immersion.



U.S.S. GAS MONADE (APA 85)
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Defense Special Weapons Agency 6801 Telegraph Road Alexandria, Virginia 22310-3398

TRC

11 April 1997

MEMORANDUM FOR DEFENSE TECHNICAL INFORMATION CENTER ATTENTION: OMI/Mr. William Bush

SUBJECT: Declassification of AD-367494

The Defense Special Weapons Agency (formerly the Defense Nuclear Agency) Security Office has reviewed and declassified the following report:

AD-367494

XRD-181 Volume 2.

Distribution statement "A" now applies.

Soluth Savet

Chief, Technical Resource Center

copy furn: FC/DASIAC

KSC